

DIVISION II
SPECIAL CONDITIONS

1.0 LOCATION AND DESCRIPTION OF WORK

The work to be performed under this section is at Maintenance Hanger One, Bradley Air National Guard Base, 100 Nicholson Road, East Granby, Connecticut. All further references to "Contractor" in this section shall mean "Asbestos Abatement Contractor" unless specified as "General Contractor". The Contractor shall be familiar with plans and drawings of this Project Manual related to work that may impact asbestos materials. The Contractor shall work in coordination with the General Contractor for the abatement of asbestos materials as required by this section and as required by the project manual specifications and drawings.

- 1.1 At a minimum the Contractor shall furnish all labor, equipment, insurance, licenses, permits, and notifications necessary to legally remove, package, and dispose of all asbestos materials in accordance with the project specifications as follows:

- 1.1.1 Removal and wet wipe of metal access plates, abatement of contaminated soil (est. 24" deep), and abatement of pipe insulation on pipes, from East-West Hangar floor trench and sections of trench involved in new ramp construction within full containment.

1.2 Estimated Quantities of ACM

| <i>Material</i> | <i>Location</i> | <i>Quantity *</i> |
|-------------------------------------|-----------------|--|
| | | |
| | | |
| | | |
| Pipe insulation & contaminated soil | Hangar Trenches | 250 lin ft of trench w/ (2) pipe runs and 24" of contaminated soil |

*** These estimates are provided to assist the bidder. They do not in any way relieve the Contractors responsibility to review and confirm actual quantities and conditions via a site visit.**

- 1.3 To facilitate and prior to the abatement work, the Contractor shall perform following work:
- A. Construct critical barriers across all openings between the abatement work areas and non-work area spaces.

- B. Within the work area where ACM will be removed, install high efficiency particulate air filtration device(s) capable of producing a negative air pressure differential within the work area of at least 0.020 inches of water static pressure. Provide a pressure monitor for each work area to determine compliance with negative air pressure requirements.
 - C. Perform demolition/ disassembly of lighting fixtures as required to access and properly remove ACM.
 - D. Safety and worker protection is the responsibility of the Contractor. The Contractor shall detail work site safety procedures in the Health and Safety Plan.
 - E. The Contractor shall protect and isolate electrical cables from the work area. The integrity of cable insulation shall be the Contractor's responsibility.
 - F. The Contractor shall supply and erect scaffolding and staging as necessary to provide access for removal related activities.
 - G. The Contractor shall provide a Connecticut-licensed master electrician to oversee any electrical work related to installation of temporary electrical service for abatement work and/or any disconnection work necessary to remove asbestos.
 - H. The Contractor shall note that other construction trades may be working within the project site at the time of the abatement work. The Contractor shall maintain harmonious relations with other trades.
- 1.5 The Contractor shall comply fully with technical specifications included in this Contract Document, and will be observed by the Abatement Monitor (AM). All work shall be performed such that Contractor, Contracting Officer's employees, and public exposures to Asbestos are minimized, building contamination is prevented, contaminated materials are promptly and legally disposed of, and interference with public traffic is minimized.
- 1.6 Detailed work procedures are provided in the Technical Specification, Division III.
- 1.7 The Contractor must possess a valid Asbestos Abatement Contractor's license from the Connecticut DOH, and all asbestos abatement work activities shall be performed by properly trained asbestos abatement workers.
- 1.8 The Contractor shall also obtain and pay for all required permits, and prepare and file all local, state, and EPA pre-notification forms in a timely manner prior to abatement work.
- 1.9 The Contractor shall conduct personal exposure air monitoring as prescribed by OSHA during the project performance.

2.0 LEAD-BASED PAINT

Lead based paint abatement is not an objective of this specification. However, It is the Contractor's responsibility to comply with all applicable federal, state and local regulations for handling and disposal of LBP should Asbestos removal affect lead painted surfaces.

3.0 COMMENCEMENT AND COMPLETION OF WORK

- 3.1 The Contractor shall commence work at the date to be determined at the pre-construction meeting. Work must be completed in a timely manner.

4.0 CONSULTANT AND SUSPENSION OF WORK

- 4.1 The Contracting Officer will designate a qualified firm or individual to perform the duties of the Consultant for this Contract. The Consultant will also act as the Abatement Monitor (AM) for the project.
- 4.2 The removal work shall proceed in a manner that is reviewed by the Consultant. The Contractor shall request critical inspections, in writing, at least 24 hour in advance of requiring the inspection.
- 4.3 During the progress of the work, the Consultant, following approval by the Contracting Officer, will have the right to make any changes, alterations, additions or omissions in the work, related drawings or specifications in accordance with the General Conditions.
- 4.4 The Consultant will recommend that the Contracting Officer order a suspension of work based on a determination of risk of adverse health and safety impacts on the environment, workers, or the general public, or failure to comply with the specifications. The Contractor and the Contracting Officer will be notified in writing of the reason and of the recommended resolution.
- 4.5 The Consultant will provide observation, air monitoring, and surface dust testing services throughout the Contract's duration. It shall be the Contractor's responsibility to comply with pertinent work standards and regulations.
- 4.6 The Consultant will conduct visual observations and air and/or sampling surface dust wipe tests in work areas for evaluating that the work areas remain properly sealed and specified work items are properly completed. Upon completion of work in a defined work area, the Consultant will conduct a final inspection and conduct final work area clearance testing, where required, for the purpose of evaluating work completion. Unsatisfactory conditions shall be immediately corrected in a manner specified by the Consultant and the contract documents. Final payments shall be approved only after the Consultant receives all properly completed Waste Shipment Record Forms and other required documentation and records (see Appendix A).

5.0 CONTRACTOR'S OFFICIAL REPRESENTATIVE, AND PROJECT SUPERVISION

- 5.1 Prior to commencement of the abatement work, the Contractor shall submit in writing for the Contracting Officer's approval the name, title, and qualifications of a least one official Contract Representative for the duration of the contract period. Each designated representative must meet the following minimum qualifications:
 - A. Be a principal or full-time employee of the Contractor, and have the authority to review, negotiate, and sign contract work-related documents on behalf of the Contractor.
 - B. Be thoroughly knowledgeable of the contract documents, including all technical and record keeping requirements.
 - C. Be readily available at all times during the contract period and attend regular project start, end, and weekly progress meetings.
- 5.2 The Contracting Officer's approval of this official "Contract Representative" shall be obtained prior to commencement of the work.
- 5.3 The Contractor shall immediately notify the Contracting Officer in writing of any change in employment status of the Contract Representative and shall submit the name of his/her replacement for approval. The Contracting Officer reserves the right to terminate the contract within five calendar days if the Contractor does not have a qualified Contract Representative.
- 5.4 The Contractor shall provide on-site an English-speaking asbestos project supervisor and at least one English-speaking foreman for the interior of each work area at all times when work is in progress.
 - A. The supervisor and foreman must be thoroughly experienced in asbestos removal work, knowledgeable of all EPA, OSHA, state and local regulations and capable of skillfully executing all work promptly, efficiently and in compliance with all requirements of these specifications.
 - B. They shall have at least 12 months of documented experience in the Asbestos abatement field at a supervisory or foreman level, and be thoroughly knowledgeable of all aspects of design, performance and supervision of Asbestos abatement projects.
 - C. The supervisor and foreman must possess valid asbestos or other required state certification (license) in the appropriate discipline.
- 5.5 The Contracting Officer reserves the right to have any supervisory or foreman personnel removed from a project who does not demonstrate the requisite qualifications, English-speaking capability, experience, or skills to safely direct the work, and adequately protect their own employees, or other employees occupying the premises.

- 5.6 All abatement supervisors, foremen, and workers shall be certified pursuant to Commonwealth of Connecticut requirements.

6.0 REQUIRED SUBMITTALS

- 6.1 The Contractor shall submit three copies of the following items to the Consultant at least five calendar days prior to the start of work on the Contract. No work shall commence until these items are reviewed and approved by the Contracting Officer, through a review and recommendation by the Consultant, unless otherwise waived by the Consultant. Submittals shall be identified as listed below and in Division III, Section 01300 and shall be prepared in sufficient detail to enable the Consultant to readily identify the particular product or equipment, and to form an opinion as to its conformity to the specifications.
- 6.2 The Contractor shall prepare and file formal written notification forms for the work. Each notification shall be in a format acceptable to the listed agency, and be filed within the prescribed pre-notification time period with proper fee included. Copies of all notifications shall be concurrently transmitted to the Contracting Officer and the Consultant:
- 6.3 Three copies of the following items shall be submitted to the Consultant for approval during the course of work under this Contract. These items shall be submitted without delay. Prior to starting work the Contractor shall submit the following:
- A. Quality assurance records including safety (with copies of the OSHA 200 accident report), security, materials and personnel. (Submittal A)
 - B. Changes to original submissions or statement of no changes. (Submittal B)
 - C. Construction schedule. (Submittal C)
 - D. Name and appropriate certifications for laboratories to be use for any analytical testing including, but not limit to, TCLP testing of waste and personal air testing for OSHA compliance. (Submittal D).
 - E. Inspection and service records for HEPA-filtered exhaust units (Submittal E)
 - F. Schedule of values separating the portion of the total contract amount associated with the preparation and removal in each area. (Submittal F)

Daily, during work the following shall be submitted:

- G. Daily logs of workers who enter abatement work areas. (Submittal G)
- H. Results of personal exposure air monitoring samples. (Submittal H)
- I. Inspection, fit-test results, air flow readings, cleaning and maintenance records for air filtering, PAPR, or supplied air respirators. (Submittal I)

- 6.4 Facilities and labor for handling and inspecting all materials and equipment shall be furnished by the Contractor. If the Consultant so requires, either prior to the beginning or during the progress of the work, the Contractor shall submit samples of materials for such special tests as may be necessary to demonstrate that they conform to the specifications. Such samples shall be furnished, stored, packed, shipped and tested as directed at the Contractor's expense.
- 6.5 The Contractor shall review, verify, approve and submit with reasonable promptness and in such sequence as to cause no delay in the Work or in the work of the Contracting Officer or any separate Contractor, all Shop Drawings, Product Data and Samples required by the Contract Documents and/or the Consultant.
- 6.6 The Contractor shall submit data and samples sufficiently early to permit Connecticut Air National Guard consideration for approval before materials are necessary for incorporation in the work. Any delay of approval resulting from the Contractor's failure to submit samples or data promptly shall not be used as a basis of a claim against the Contracting Officer or the Consultant.

**7.0 CONNECTICUT DOH RECORD KEEPING REQUIREMENTS
(GENERAL & ASBESTOS ABATEMENT)**

- 7.1 As required by CT DOH, the Contractor shall maintain the following written records:
 - A. Central Location: The following records and documents shall be maintained by the Contractor at a central location at the principal place of business:
 - 1. Records and documents required by 29 CFR 1910.1001 and 29 CFR 1926.1101.
 - 2. Name and address of each project employee, including dates of employment, medical and training certification. A description of each employee's involvement in previous asbestos project (including name, address, location and duration of project) while employed by the Contractor.
 - 3. Copies of all regulatory agency correspondence including letters, notices, citations received and notifications made by the Contractor pursuant to 453 CMR 6.12.
 - 4. Records and documents required to be maintained under any other applicable Federal, State or local law, regulation or ordinance.
 - 5. Receipts and documentation of disposal of asbestos waste showing dates, locations and amounts of asbestos waste disposed including the identification of the source of the asbestos waste and the transporter (company name or driver's name if an employee of the Contractor).

6. Copies of laboratory reports and sample analysis documenting workplace and personal exposure levels, including copies of consultant's reports regarding clearance level monitoring.

B. On-Site: The following records and documents shall be maintained on-site at the asbestos work location for the duration of the project.

1. A current copy of the work practice requirements of the Connecticut Asbestos Regulation.
2. A copy of this Contract and Specifications.
3. A listing of all employees, by name, Social Security number and Connecticut Asbestos Abatement Worker or Supervisor/Foreperson Certification Number.
4. A listing of the Contractor's Sub-Contractors and Consultants on the project.
5. A legible copy of each employee's training certification.
6. A daily sign-in/out log which identifies persons by name and the length of time each person is on the site.
7. Records of all on-site air monitoring.
8. A written respirator program which conforms to requirements of 29 CFR 1910.134(b).
9. Certified results of worker fit-tests for passive air filtering respirator (if used); and written records for daily inspections, air flow tests, cleaning and repairs of all respirators.
10. Written records of inspection, service and changing of filters for the HEPA-filtered exhaust units.
11. Material Safety Data Sheets (MSDS) for any chemicals stored or used on site.

- 7.2 All of the above records shall be available for immediate inspection by Contracting Officer and/or the Consultant upon request.

8.0 GUARANTEE OF MATERIALS AND WORKMANSHIP

- 8.1 The Contractor's attention is directed to Division I of these specifications.

- 8.2 All materials, services, equipment and workmanship furnished shall be guaranteed for a period of one year after date of acceptance. All work rejected by the Contracting Officer or his representatives shall be redone at the Contractor's expense.

9.0 FIRE PRECAUTIONS

- 9.1 A qualified fire watch shall be maintained at the Contractor's expense when using any type of burning or welding equipment and extinguishing materials suitable to the Contracting Officer shall be furnished and maintained close to each burning or welding operation.
- 9.2 The Contractor shall first advise and obtain from the Contracting Officer permission to use any type of burning or welding equipment of any nature on the project. In addition, The Contractor will secure a hot work permit from the Rocky Hill Fire Department.
- 9.3 The Contractor shall notify the East Granby Fire Department prior to starting work on the project. The Fire Department shall be informed of the location and duration of the work. If required by the local fire code, the Contractor shall obtain a permit from East Granby Fire Department.

10.0 RESTRICTIONS ON THE CONTRACTOR'S OPERATIONS AS TO THE USE OF GROUNDS

- 10.1 The Contractor shall confine his/her operations to the actual work site, access routes and storage areas designated by the Contracting Officer or the local facility manager.
- 10.2 The Contractor shall have sole responsibility for providing all materials, equipment, or tools and any storage required shall be at the Contractor's own risk. The Owner will not assume responsibility for any loss of materials, equipment, or tools stored on its property.

11.0 VISIT TO PREMISES

- 11.1 Examination of the project site and work areas shall be made by the Contractor who shall compare it with the contract drawings and specifications to determine the exact amount of work including that to be removed, altered and/or reconnected. The Contractor shall satisfy himself as to the condition under which the work is to be performed and gain complete knowledge of the scope of work to provide for complete and operable systems. No allowances will subsequently be made for any extra expense to which the Contractor may be accountable due to failure to make such examination and to include the required materials and labor in the bid.
- 11.2 The Contractor will be held to have examined the premises before submitting the proposal for the work and to have knowledge as to the existing conditions under which the work is to be accomplished.

12.0 EMERGENCY CALLS

- 12.1 The Contractor shall provide the Consultant and Contracting Officer with a telephone number where the Contractor or Contractor's Representative can be reached during non-working hours.
- 12.2 At the direction of a duly authorized representative of the Contracting Officer, the Contractor shall dispatch all necessary personnel and equipment to any point on the work site to clear obstructions or make safe any conditions deemed necessary by the Contracting Officer or Consultant.

13.0 PRE-CONSTRUCTION MEETING

- 13.1 After the award of the Contract, but prior to commencing work assigned under the Contract, a pre-construction meeting will be held at a place and time designated by the Consultant to discuss implementation of the terms and conditions of this Contract.
- 13.2 After the pre-construction meeting, but before the commencement of work, the Contractor shall document all present damages at the facility where abatement work will be performed. Photographs or videotape may be used. The Contractor shall be responsible for all repairs/restoration, at no additional cost to the Owner, for any damage not previously recorded.

14.0 SPECIAL INSTALLATION REQUIREMENTS

- 14.1 Any special requirements in addition to those specified in these Special Conditions such as the protection of workers, public, equipment, etc., from ACM , LBP, or other hazardous material exposure; work-related security requirements and work performance-related equipment, materials shall be the responsibility of the Contractor and no additional payment will be made to him/her because of lack of knowledge of such conditions.

15.0 CONSTRUCTION SCHEDULE

- 15.1 Five calendar days prior to commencing work, a construction schedule in a form and substance approved by the Contracting Officer shall be submitted to the Consultant for approval. The Contractor shall not commence any physical work at the site until he/she has received that approval.

16.0 SAFETY AND HEALTH REQUIREMENTS

- 16.1 These construction documents, and the joint and several phases of construction hereby contemplated are to be governed, at all times, by applicable provisions of the Federal laws, including but not limited to, the latest, amendments of the following:
 - A. William-Steiger Occupational Safety & Health Act of 1970, Public Law 91-596.

- B. Part 1910-Occupational Safety and Health Standard Chapter XVII of Title 29, Code of Federal Regulations.
- C. Part 1518-Safety and Health Regulations for Construction, Chapter XIII of Title 29, Code of Federal Regulations.
- D. U.S. Department of Labor in 29 CFR, Part 1926.1101, and the Connecticut Department of Labor and Industries, Division of Industrial Safety "Rules and Regulations for the Prevention of Accidents in Construction Operations (Industrial Bulletin No. 12)."

16.2 The Contractor and all subcontractors shall immediately report all accidents, injuries, or health hazards to the Contracting Officer and Consultant, or their designated representatives, in writing. This shall not obviate any mandatory reporting under the provisions of the Occupational Safety and Health Act of 1970.

17.0 MATERIAL SUBSTITUTION

- 17.1 Where products or materials are specified by the manufacturer's name, or catalog reference, the words "or approved equal" shall be understood to follow. An item shall be considered equal to the item so named or described if:
- A. It is at least equal in quality, durability, appearance, strength and design.
 - B. It performs at least equal to the function imposed by the general design for the work.
 - C. It conforms substantially, even with deviations, to the detailed requirements for the item as indicated by the specifications.
- 17.2 The Contractor's proposal, however, shall be based on the use of any products or material specified, and where two or more products or materials are specified, the choice of these shall be optional with the Contractor.

18.0 SITE SECURITY

- 18.1 Security for the project shall be coordinated with the Contracting Officer's security department and the Consultant.
- 18.2 Equipment stored out-of-doors at the project site is done so at the Contractor's risk. If equipment is left out-of-doors at the project site, it shall be done so inconspicuously and in a location approved in advance by the Contracting Officer.

19.0 VEHICLE TRAFFIC CONTROL AND ACCESS

- 19.1 All vehicles, storage of materials and debris, and the operations of the Contractor in connection with the activities under this Section shall be confined to limits of the contract.

- 19.2 Arrangements for temporary storage or parking of Contractor's trucks, and other vehicles shall be made through the Contracting Officer.
- 19.3 The work shall be conducted in a manner that will not interrupt or interfere with daily operations of the Air National Guard Installation or Contracting Officer or with the orderly and safe passage of the general public.

20.0 WASTE DISPOSAL

- 20.1 All hazardous wastes shall be disposed of at a state and/or federally approved landfill.
- 20.2 The Contractor shall be required to provide a fully completed and signed waste manifest for each load of waste that leaves the site. The form located in Appendix A to Division 3 will be the only manifest form approved for use for ACM waste on this project. Manifests for other hazardous wastes shall be similar in information content to the ACM waste manifest.

21.0 CONTRACTING OFFICER'S RESPONSIBILITIES

- 21.1 The Contracting Officer will furnish the Contractor with electricity and water. The Contractor's personnel will be required to provide their own sanitary facilities. It shall be the Contractor's responsibility to provide hoses, extension cords, etc. to bring water and electricity from the source to the work area(s).
- 21.2 The Contracting Officer, through the Consultant, will provide for services of an Industrial Hygienist (Abatement Monitor) for collection of background and clearance air samples. The Contractor shall provide for collection and analysis of any OSHA required sampling.

END OF SPECIAL CONDITIONS

Fire Suppression System, Building No. 1
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SECTION 01100 - SUMMARY

PART 1 - GENERAL

1.01 RELATED DOCUMENTS

A. Contract Documents:

1. Work requirements are contained in Contract Documents and include cross-references to published information, which are not necessarily bound as part of this Project Manual.
2. Drawings and General Provisions of Contract, including General and Supplementary Conditions, and other Division 1 Specification Sections, apply to work and all Specification Sections of this Project.

1.02 WORK COVERED BY CONTRACT DOCUMENTS

A. Project Identification: Project consists of installation of a fire suppression system, repair of hangar doors, provision of new switchgear, and associated renovations and improvements as indicated on the Drawings.

1. Project Location: Bradley Air National Guard Base, East Granby, CT.
2. Owner: U.S. Property and Fiscal Office, 360 Broad Street, Hartford, CT.

B. Architectural Identification: The Contract Documents, dated July 15, 2002, were prepared for Project by Maguire Group Inc., One Court Street, New Britain, CT 06051.

1.03 CONTRACT

A. Project will be constructed under a general construction contract.

1.04 CONTRACTOR USE OF PREMISES

A. Use of Site:

1. Limit use of premises to work in areas indicated.
2. Confine operations to areas within Contract limits indicated.
3. Do not disturb portions of site beyond area in which work is indicated.
4. Allow for Government occupancy and use by public.
5. Driveways and Entrances:
 - a. Keep driveways and entrances serving premises clear and available to Government, Government's employees, and emergency vehicles at all times.
 - b. Do not use these areas for parking or storage of materials.
 - c. Schedule deliveries to minimize space and time requirements for storage of materials and equipment on site.

1.05 MISCELLANEOUS PROVISIONS

A. Accessibility Compliance:

1. Full compliance with Uniform Federal Accessibility Standards (UFAS) and Americans with Disabilities Act (ADA), prohibiting discrimination on basis of disability by public accommodations, is required for work of this Project.
2. Accessible construction includes, but is not limited to, following:
 - a. Walks, Floors, and Accessible Routes.
 - b. Ramps and Curb Ramps.
 - c. Stairs.
 - d. Handrails.
 - e. Entrances.
 - f. Doors and Finish Hardware.
 - g. Toilet Facilities and Accessories.
3. This Project has been designed to and requires full compliance with ADA regulations, whether or not specific references or notes to ADA are made on Drawings or in Specifications.

1.06 COORDINATION RESPONSIBILITIES

- A. Coordinate work of various Sections of Specifications to assure efficient and orderly sequence of installation of construction elements, with provisions for accommodating items installed later.
- B. Verify characteristics of elements of interrelated operating equipment are compatible; coordinate work of various Sections having interdependent responsibilities for installing, connecting to, and placing in service, such equipment.
- C. Mechanical/Electrical:
 1. Coordinate space requirements and installation of mechanical and electrical work indicated diagrammatically on Drawings.
 2. Follow routing shown for pipes, ducts, and conduits, as closely as practicable.
 3. Make runs parallel with lines of building.
 4. Utilize spaces efficiently to maximize accessibility for other installations, maintenance, and repairs.
 5. In finished areas, except as otherwise shown, conceal pipes, ducts, and wiring in construction.
 6. Coordinate locations of fixtures and outlets with finish elements.
- D. Subcontractor Coordination:
 1. Ensure subcontractors are knowledgeable of all Division 1, General Requirements, Sections, and are responsible for conforming to applicable requirements and instructions stated.
 2. Assume responsibility for administering work performed by subcontractors according to Division 1, General Requirements.

E. Installation Sequencing:

1. Examine materials and installations performed by others before starting next stage or adjacent work.
2. Notify Contracting Officer immediately of unsatisfactory conditions that hinder or restrict correct installation of next stage or adjacent work.
3. Start of next stage or adjacent work will be construed as acceptance of previous or adjacent work, whether or not conditions are satisfactory.
4. Any work requiring subsequent removal or replacement due to unsatisfactory or defective work shall not be at expense of Government.

F. Contract Document Review:

1. Before execution of work, review all Drawings and Specifications and immediately report all errors, discrepancies, and/or omissions discovered to Contracting Officer, in writing, with one set of Contract Documents marked in red pencil clearly indicating discrepancies.
2. Omissions from Drawings and/or Specifications or misdescription of details of work that are manifestly necessary to carry out intent of Drawings and Specifications, or are customarily performed, shall not relieve Contractor from performing such omitted or misdescribed details of work; but shall be performed as if fully and correctly set forth and described in Drawings and Specifications, using most appropriate method, with final approval issued by Contracting Officer to alleviate conflicts of scheduling, Drawings, Details, and/or Specifications.
3. Design Intent:
 - a. Purpose of Drawings is to graphically depict characteristics and extent of Project.
 - b. Specifications included as part of Project Manual are provided to state material type, function, and source of materials.
 - c. Reference standards used in Specifications describe, by inference, specific materials and may include recommended methods of installation or application based on industry standards.

1.07 FIELD ENGINEERING

- A. Provide field engineering services; establish grades, lines, and levels, by use of recognized engineering survey practices.
- B. Control datum for survey is that established by Government-provided survey, shown on Drawings.
- C. Locate and protect control and reference points.

1.08 SPECIFICATION FORMATS AND CONVECTIONS

- A. Specification Format: The Specifications are organized into Divisions and Sections using the 16-division format and CSI/CSC's "MasterFormat" numbering system.
 1. Section Identification: The Specifications use section numbers and titled to help cross-referencing in the Contract Documents. Sections in the Project Manual are in numeric sequence; however, the sequence is incomplete. Consult the Table of Contents at the

beginning of the Project Manual to determine numbers and names of sections in the Contract Documents.

- B. Specification Content: The Specifications use certain conventions for the style of language and the intended meaning of certain terms, words, and phrases when used in particular situations. These conventions are as follows:
 - 1. Abbreviated Language: Language used in the Specifications and other Contract Documents is abbreviated. Words and meanings shall be interpreted as appropriate. Words implied, but not stated, shall be inferred as the sense requires. Singular words shall be interpreted as plural, and plural words shall be interpreted as singular where applicable as the context of the Contract Documents indicates.
 - 2. Imperative mood and streamlined language are generally used in the Specifications. Requirements expressed in the imperative mood are to be performed by Contractor. Occasionally, the indicative or subjunctive mood may be used in the Section Text for clarity to describe responsibilities that must be fulfilled indirectly by Contractor or by others when so noted.
 - a. The words "shall," "shall be," or "shall comply with," depending on the context, are implied where a colon (:) is used within a sentence or phrase.

1.09 REFERENCE STANDARDS

- A. Compliance: Work shall conform to standards published by recognized professional and industry organizations when referenced in this Project Manual.
- B. Edition Date of Reference Standards:
 - 1. Code Listing: Any reference to standards of any society, institute, association, or governmental agency that is part of building code in effect for this Project shall comply with edition date published in referenced edition of Building Code.
 - 2. Non-Code Listing: Any reference to standards of any society, institute, association, or governmental agency that is not part of Building Code for this Project shall be edition in effect at time of opening of Bids, except as otherwise specifically stated in this Project Manual.
 - 3. Project Manual Listing: Edition dates listed with reference standards in each Section of this Project Manual are included for reference only.
- C. If reference standards are revised before completion of any part of work to which such revision would pertain, Contractor may, if acceptable to Contracting Officer and if not violating Building Code, perform such work according to revised Specifications.

1.10 ABBREVIATIONS

- A. Reference to technical society, institution, association, or governmental agency made in these Specifications is in form of standard acronym or abbreviation as published in Encyclopedia of Associations, published by Gale Research Co., available in most libraries.

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- B. Use of abbreviations for technical terms in text of Specifications are restricted to most commonly used terms and comply with U.S. Government Printing Office Style Manual, published by U.S. Government Printing Office (GPO).

PART 2 PRODUCTS

NOT USED

PART 3 EXECUTION

NOT USED

END OF SECTION 01100

SECTION 01270 - SCHEDULE OF VALUES

PART 1 GENERAL

1.01 SUMMARY

- A. This Section specifies administrative and procedural requirements governing Contractor's Schedule of Values which, when approved, is used as basis for Applications for Payment to Contractor.
- B. Related Sections: Following Documents/Sections contain requirements that relate to this Section.
 - 1. Agreement: Agreement between Government and Contractor.
 - 2. Conditions of the Contract: Progress Payments, Retainages, and Final Payment.
 - 3. 01300, Submittals; for Contractor's Construction Schedule and Submittal Schedule.
 - 4. 01770, Closeout Procedures; for final payment.

1.02 SCHEDULE OF VALUES

- A. Coordination:
 - 1. Coordinate preparation of Schedule of Values with preparation of Contractor's Construction Schedule.
 - 2. Submit Schedule of Values to Contracting Officer within 10 days after Award of Contract for review and comment.
- B. Format and Content:
 - 1. Use Project Manual table of contents as guide to establish format for Schedule of Values.
 - 2. Provide at least one line item for each Specification Section.
 - 3. Identification: Include following Project identification on Schedule of Values:
 - a. Project Name and Location.
 - b. Name of Contracting Officer.
 - c. Project number and contract number.
 - d. Contractor's name and address.
 - e. Date of submittal.
 - 4. Arrange Schedule of Values in tabular form with separate columns to indicate following for each item listed:
 - a. Related Specification Section or Division.
 - b. Description of Work.
 - c. Additive Bid Items by number listed in Section 01230, Additives Bid Items.
 - d. Change Orders (numbers) that affect value.
 - e. Dollar Value.
 - f. Percentage of Contract Sum to nearest one-hundredth percent, adjusted to total 100 percent.

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5. Provide breakdown of Contract Sum in sufficient detail to facilitate continued evaluation of Applications for Payment and progress reports.
6. Coordinate with Project Manual Table of Contents.
7. Break principal subcontract amounts down into several line items.
8. Round amounts to nearest whole dollar; total shall equal Contract Sum.
9. Provide separate line item in Schedule of Values for each part of Work where Applications for Payment may include materials or equipment, purchased or fabricated and stored, but not yet installed.
10. Breakdown value into following sub-values:
 - a. Differentiate between items stored on-site and items stored off-site; include requirements for insurance and bonded warehousing.
 - b. Cost of material delivered and unloaded at Project site with taxes paid.
 - c. Installation cost including overhead and profit.
11. Overhead and Profit: For various portions of work, include directly proportional amount of Contractor's overhead and profit.
12. Schedule Updating: Update and resubmit Schedule of Values prior to each Application for Payment when Change Orders or Construction Change Directives result in change in Contract Sum.

1.03 APPLICATIONS FOR PAYMENT

- A. Procedures for Application for Payment shall be as specified in Conditions of the Contract.

PART 2 PRODUCTS

NOT USED

PART 3 EXECUTION

NOT USED

END OF SECTION 01270

SECTION 01325 - PROJECT MEETINGS

PART 1 GENERAL

1.01 SUMMARY

- A. This Section specifies administrative and procedural requirements for Project meetings including, but not limited to:
 - 1. Preconstruction conference.
 - 2. Preinstallation conferences.
 - 3. Coordination meetings.
 - 4. Progress meetings.
- B. Refer to other Division 1 Sections for Construction Schedules.

1.02 PRECONSTRUCTION CONFERENCE

- A. General:
 - 1. Schedule preconstruction conference and organizational meeting at Project site or other convenient location by 15 days after execution of Agreement and before commencement of construction activities.
 - 2. Conduct meeting to review responsibilities and personnel assignments.
- B. Attendees: Government, Contracting Officer and their consultants, Contractor and its superintendent, major subcontractors, manufacturers, suppliers, and other concerned parties shall each be represented by persons familiar with and authorized to conclude matters relating to work.
- C. Agenda: Discuss significant items that could affect progress, including:
 - 1. Tentative Construction Schedule.
 - 2. Critical work sequencing.
 - 3. Designation of responsible personnel.
 - 4. Procedures for processing field decisions and Change Orders.
 - 5. Procedures for processing Applications for Payment.
 - 6. Distribution of Contract Documents.
 - 7. Submittal of shop drawings, product data, and samples.
 - 8. Preparation of record documents.
 - 9. Use of premises.
 - 10. Office, work, and storage areas.
 - 11. Equipment deliveries and priorities.
 - 12. Safety procedures.
 - 13. First aid.
 - 14. Security.
 - 15. Housekeeping.

16. Working hours.

1.03 PREINSTALLATION CONFERENCES

A. General:

1. Conduct preinstallation conference at site before each construction activity that requires coordination with other construction.
2. Installer and representatives of manufacturers and fabricators involved in or affected by installation, and its coordination or integration with other materials and installations that have preceded or will follow, shall attend.
3. Advise Contracting Officer of scheduled meeting dates.
4. Review progress of other construction activities and preparations for activity under consideration at each preinstallation conference, including requirements for:
 - a. Contract Documents.
 - b. Options.
 - c. Related Change Orders.
 - d. Purchases.
 - e. Deliveries.
 - f. Shop drawings, product data, and quality control samples.
 - g. Possible conflicts.
 - h. Compatibility problems.
 - i. Time schedules.
 - j. Weather limitations.
 - k. Manufacturer's recommendations.
 - l. Compatibility of materials.
 - m. Acceptability of substrates.
 - n. Temporary facilities.
 - o. Space and access limitations.
 - p. Governing regulations.
 - q. Safety.
 - r. Inspection and testing requirements.
 - s. Required performance results.
 - t. Recording requirements.
 - u. Protection.
5. Record significant discussions, agreements, and disagreements of each conference, along with approved Schedule.
6. Distribute meeting record to everyone concerned, promptly, including Government and Contracting Officer.
7. Do not proceed if conference cannot be successfully concluded.
8. Initiate necessary actions to resolve impediments to performance of work and reconvene conference at earliest feasible date.

1.04 COORDINATION MEETINGS

A. General:

1. Conduct Project coordination meetings at regularly scheduled times convenient for all parties involved.
2. Project coordination meetings are besides specific meetings held for other purposes, such as regular progress meetings and special preinstallation meetings.
3. Request representation at each meeting by every party currently involved in coordination or planning for construction activities involved.
4. Record meeting results and distribute copies to everyone in attendance and to others affected by decisions or actions resulting from each meeting.

1.05 PROGRESS MEETINGS

A. General:

1. Conduct progress meetings at Project site at regularly scheduled intervals.
2. Notify Government and Contracting Officer of scheduled dates.
3. Coordinate meeting dates with preparation of payment request.

B. Attendees: Besides representatives of Government and Contracting Officer, each subcontractor, supplier, or other entity concerned with progress or involved in planning, coordination, or performance of future activities shall be represented by persons familiar with Project and authorized to conclude matters relating to progress.

C. Agenda:

1. Review and correct or approve minutes of previous progress meeting.
2. Review other significant items that could affect progress.
3. Include topics appropriate to status of Project.

D. Contractor's Construction Schedule:

1. Review progress since last meeting.
2. Determine where each activity is in relation to Contractor's Construction Schedule, whether on time, ahead of, or behind schedule.
3. Determine how construction behind schedule will be expedited; secure commitments from parties involved to do so.
4. Discuss whether Schedule revisions are required to ensure current and subsequent activities will be completed with Contract Time.
5. Review present and future needs of each entity present, including such items as:
 - a. Interface requirements.
 - b. Time.
 - c. Sequences.
 - d. Deliveries.
 - e. Off-Site fabrication problems.
 - f. Access.

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- g. Site utilization.
- h. Temporary facilities and services.
- i. Work hours.
- j. Hazards and risks.
- k. Housekeeping.
- l. Quality and work standards.
- m. Change Orders.
- n. Documentation of information for Payment Requests.

E. Reporting:

- 1. By 3 days after each meeting, distribute copies of meeting minutes to each party present and to parties who should have been present.
- 2. Include brief summary, in narrative form, of progress since previous meeting and report.

F. Schedule Updating:

- 1. Revise Construction Schedule after each progress meeting where revisions to Schedule have been made or recognized.
- 2. Issue revised Schedule concurrently with Report of each meeting.

PART 2 PRODUCTS

NOT USED

PART 3 EXECUTION

NOT USED

END OF SECTION 01325

SECTION 01300 - SUBMITTALS, SCHEDULES AND SHOP DRAWINGS

PART 1: GENERAL

1.01 SUBMITTALS

- A. Summary
- B. Submittals
- C. Shop Drawings
- D. Certificate of Conformance
- E. Submittal Requirements

1.02 SUMMARY

This section prescribes the requirements of the submittals, including Work Practices and Procedures; Health and Safety Plan; Equipment and Materials to be Used; Notification Requirements; Personnel Training, Medical and Respirator Fit Test Documentation; Shop Drawings; and Manufacturer's Literature, Including Product Data Sheets.

1.03 SUBMITTALS

- A. Submittals shall be provided to the Consultant in accordance with this Section and indexed in the order of the assigned Submittal number or specification subsection before material or equipment is purchased or the work performed. The Contractor shall submit to the Consultant for review three copies of the information required herein. The adequacy and accuracy of submittals and their compliance with contract documents are the responsibility of the Contractor. Reviewing actions taken by the Consultant in no way relieve the Contractor of his/her quality control requirements.
- B. General: The Contractor shall submit:
 - 1. A list of proposed subcontractors with their address, specialty and qualifications (Submittal No. 1).
 - 2. Required Bonds and Insurance (Submittal No. 2).
- C. Work Practices and Procedures:
 - 1. Proposed Work Plan: The Contractor shall submit a written work plan and sketches of the work procedures to be used in the removal, disposal and replacement of materials. The abatement plan shall include the location of abatement control areas, decontamination areas, equipment decontamination enclosures, interface of trades involved in the construction, sequencing of abatement-related work, disposal plan, type of wetting agents, sealants, personal air monitoring program and a description of the method to be employed to reduce fiber releases. For each work area, the abatement plan shall show the point of controlled access to the building for transporting removed hazardous or special waste material from the regulated area to the exterior of the building. The

abatement plan shall show auxiliary make-up air points, location of HEPA exhaust ventilation units, and location of pressure differential monitor(s) (Submittal No. 3).

2. Health and Safety Plan: The Health and Safety Plan (Submittal No. 4) shall include, but not be limited to, the following:
 - a. Type, quantity and location of fire extinguishers.
 - b. Electrical information.
 - c. Type of eye, body and hearing protection.
 - d. Location of emergency exits.
 - e. Type, quantity and location of first aid kits.
 - f. Use of hard hats.
 - g. Safety training afforded employees.
 - h. Scaffold safety and life lines.
 - i. Personnel decontamination procedures.
 - j. Worksite inspection procedures and checklist.
3. Project Log: A Project Log shall be maintained throughout the project by the Contractor. The log shall contain notes concerning accidents that may happen and deviation from standard work procedures and project information. At project completion, the original log shall be submitted to the Consultant (Submittal No. 5).
4. Work Schedule: A detailed work schedule shall be prepared for the project including work hours, minimum daily staffing and weekly goals and objectives. The work schedule and goals shall be illustrated on a GANT (bar) chart (Submittal No. 6).
5. Waste Disposal: The Contractor shall identify the proposed waste disposal landfill or landfills for the project and provide a copy of the state and/or federal approval certification. A signed quotation of the unit cost per unit of material (by type) disposed of to be charged during the length of this Contract will also be included in this submittal. The proposed waste hauler for the project shall be identified and copies of applicable licenses shall be provided (Submittal No. 7).
6. Permits: The Contractor shall provide a list of all permits, licenses or manifests to be applied for, including notification of the Granby Fire Department (see Division II, Page 10) (Submittal No. 9).

D. Equipment and Material: The Contractor shall submit the following:

1. Certificates of Compliance: Submit manufacturer's certification that vacuums, ventilation equipment, and other equipment required to contain asbestos fibers conforms to ANSI Z9-2 (Submittal No. 9).
2. Equipment Data: Submit manufacturer's literature, catalog cuts and specifications for equipment to be used in this project (Submittal No. 10).
3. Product Data: Submit manufacturer's literature, catalog cuts and product data sheets for products to be used in this abatement project. Attach Material Safety Data Sheets to Product Data Sheets (Submittal No. 11).
 - Material Safety Data Sheets for products containing chemicals the Contractor may be utilizing on the project shall be submitted. The Contractor shall submit to the Consultant two copies of the Material Safety Data Sheets attached to the Product Data sheet for new products brought on site for which a Material Safety Data Sheet has not been previously submitted. This submission does not relieve the Contractor of the OSHA requirements regarding Contractor responsibilities with reference to the Material Safety Data Sheets nor does it relieve the Contractor of responsibility for the subsequent proper use of the product. The Owner reserves the right to approve for use any materials brought on site by the Contractor.

E. Personnel, Training, Medical, and Respiratory Fit Test Documentation: The Contractor shall submit the following:

1. Experience Summary: Submit name and experience summary of proposed project supervisors and foremen (Submittal No. 12).
2. Respirator Protection Program: Submit a summary of the Contractor's Respiratory Protection Program as required by 29 CFR 1926.1101 (Submittal No. 13).
3. Personnel: Submit copies of Personnel Training Certificates, Medical Examinations, and Respirator Fit Tests (Submittal No. 14):
 - a. Summary Sheet: Submit a summary sheet of employees, listed in alphabetical order, to include name, social security number, classification, state certificate number and dates of training, medical exams, medical questionnaires and respirator fit tests.
 - b. Medical Examinations: Submit proof of medical examinations as required by 29 CFR 1910.1001. Include in the medical report results for pulmonary function testing.

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- c. Respirator Fit Tests: Submit proof of respirator fit testing for employees to be assigned to this project. Fit Testing will be in accordance with 29 CFR 1926.1101-Appendix C.
- 4. Contractor's License: Submit a copy of the abatement Contractor's Connecticut Asbestos Abatement Contractor's license and the name of the Contractor's project Contract Representative (Submittal No. 15).

PART 2 - PRODUCTS - NOT USED

PART 3 - EXECUTION - NOT USED

END OF SECTION 01300

SECTION 01330 - SUBMITTAL PROCEDURES

PART 1 GENERAL

1.01 SUMMARY

- A. This Section includes administrative and procedural requirements for submittals required for performance of the Work, including the following:
 - 1. Contractor's progress schedule.
 - 2. Submittal schedule.
 - 3. Daily construction reports.
 - 4. Shop Drawings.
 - 5. Product Data.
 - 6. Samples.
 - 7. Quality assurance submittals.
 - 8. Construction photographs.
- B. Administrative Submittals: Refer to other Division 1 Sections and other contract Documents for requirements for administrative submittals. Such submittals include, but are not limited to, the following:
 - 1. Permits.
 - 2. Applications for Payment.
 - 3. Performance and payment bonds.
 - 4. Insurance certificates.
 - 5. List of subcontractors.
- C. Miscellaneous Submittals:
 - 1. Inspection and Test Reports: Classify each inspection and test report as being either "shop drawings" or "product data", depending on whether the report is specially prepared for the project or is a standard publication of workmanship control testing at the point of production. Process inspection and test reports accordingly.
 - 2. Warranties: Refer to the "Products and Substitutions" section for specific general requirements on warranties, product bonds, workmanship bonds and maintenance agreements. In addition to copies desired for the Contractor's use, furnish two (2) executed copies of such warranties, bonds or agreements. Provide two (2) additional copies where required for maintenance manuals.
 - 3. Survey Data: Refer to the "Project Coordination" section for specific general requirements on property surveys, field measurements, quantitative records of actual work, damage surveys and similar data required by the individual sections of these specification. None of the specified copies will be returned.
 - a. Survey Copies: Furnish two (2) copies of general survey data. Provide ten (10) copies of the final property survey.

- b. Records of Actual Work: Furnish four (4) copies of records of actual work, one (1) of which will be returned for inclusion in the record documents as specified in the "Project Closeout" section.
- 4. Standards: Where submittal of a copy of standards is indicated, except when copies of standards are specified as an integral part of a "Product Data" submittal, submit a single copy of standards for the Contracting Officer's use. Where workmanship, whether at the project site or elsewhere, is governed by a standard, furnish additional copies of the standard to fabricators, installers and others involved in the performance of the work.
- 5. Closeout Submittals: Refer to the "Project Closeout" section and to individual sections of these specifications for specific submittal requirements of project closeout information, materials, tools and similar items.
 - a. Record Documents: Furnish a set of original documents as maintained on the project site.
 - b. Operating and Maintenance Data: Furnish two (2) bound copies of operating data and maintenance manuals.
 - c. Materials and Tools: Refer to the individual sections of these specifications for required quantities of spare parts, extra and overrun stock, maintenance tools and devices, keys and similar physical units to be submitted.
- D. Related Sections: The following Sections contain requirements that relate to this Section:
 - 1. 01270, Schedule of Values.
 - 2. 01325, Project Meetings; Specifies requirements for submittal and distribution of meeting and conference minutes.
 - 3. 01600, Product Requirements; Manufacturer's instructions and Contractor's list of Products.
 - 4. 01770, Closeout Procedures; Specifies requirements for submittal of Project Record Documents and warranties at project closeout.

1.02 DEFINITIONS

- A. Coordination Drawings show the relationship and integration of different construction elements that require careful coordination during fabrication or installation to fit in the space provided or to function as intended.
- B. Field samples are full-size physical examples erected on-site to illustrate finishes, coatings, or finish materials. Field samples are used to establish the standard by which the Work will be judged.
- C. Mockups are full-size assemblies for review of construction, coordination, testing, or operation; they are not Samples.

1.03 SUBMITTAL PROCEDURES

- A. Coordination:
 - 1. Coordinate preparation and processing of submittals with performance of construction activities. Transmit each submittal sufficiently in advance of performance of related

construction activities to avoid delay, with all submittals transmitted by electronic means (email) as follows:

- a. Include USP&FO Form 3000 in Microsoft Word 97 format.
 - b. Include product data in Microsoft Word 97 format, Adobe PDF format, or scanned TIFF format; submit all product data in full color.
 - c. Distribute email as directed by Contracting Officer who will submit email addresses at Preconstruction Meeting.
2. Coordinate each submittal with fabrication, purchasing, testing, delivery, other submittals, and related activities that requires sequential activity.
 3. Coordinate transmittal of different types of submittals for related elements of the Work so processing will not be delayed by the need to review submittals concurrently for coordination.
 - a. The Contracting Officer reserves the right to withhold action on a submittal requiring coordination with other submittals until all related submittals are received.
 4. Processing: To avoid the need to delay installation as a result of the time required to process submittals, allow sufficient time for submittal review, including time for resubmittals.
 - a. Allow 15 business days for initial review. Allow additional time if the Contracting Officer must delay processing to permit coordination with subsequent submittals.
 - b. If an intermediate submittal is necessary, process in the same manner as the initial submittal.
 - c. Allow 15 business days for reprocessing each submittal.
 - d. No extension of Contract Time will be authorized because of failure to transmit submittals to the Contracting Officer sufficiently in advance of the Work to permit processing.
- B. Submittal Preparation: Place a permanent label or title block on each submittal for identification. Indicate the name of the entity that prepared each submittal on the label or title block.
1. Provide a space approximately 4 by 5 inches on the label or beside the title block on Shop Drawings to record the contractor's review and approval markings and the action taken. Submittals not signed and stamped by Contractor will be returned without action.
 2. Include the following information on the label for processing and recording action taken.
 - a. Project name and Project number.
 - b. Date of submittal.
 - c. Name and address of the Contractor.
 - d. Name and address of the subcontractor.
 - e. Name and address of the supplier.
 - f. Name of the manufacturer.
 - g. Number and title of appropriate Specification Section.
 - h. Drawing number and detail references, as appropriate.
- C. Submittal Transmittal: Package each submittal appropriately for transmittal and handling. Transmit each submittal from the contractor to the Contracting Officer using an Government

supplied transmittal form. The Contracting Officer will not accept submittals received from sources other than the Contractor.

1. On the transmittal, record relevant information and requests for data. On the form, or separate sheet, record deviations from Contract Document requirements, including variations and limitations. Include Contractor's certification that information complies with Contract Document requirements.
2. Transmittal Form: USPFO-CT Form 3000, supplied by the Contracting Officer.
3. Comply with progress schedule for submittals related to Work progress.
4. Following Contracting Officer's review, revise and resubmit as required. Identify changes made since previous submittal.
5. Distribute copies of reviewed submittals to concerned persons. Instruct recipients to promptly report inability to comply with provisions.
6. Transmittal Form: USP&FO Form 3000.

1.04 CONTRACTOR'S PROGRESS SCHEDULE

A. Bar-Chart Schedule:

1. Maintain CPM system using automated methods to involve following activities:
 - a. Long-lead purchases and deliveries of critical materials.
 - b. Fabrication, installation, and testing of critical equipment.
 - c. Submittal and approval of material samples and shop drawings.
 - d. All activities that affect job progress, including on-site regulatory inspections.
 - e. Required dates of completion for all activities.
2. Include following information for each activity for mathematical analysis of CPM network diagram:
 - a. Preceding and following event numbers.
 - b. Activity description.
 - c. Estimated activity duration.
 - d. Earliest start date (calendar date).
 - e. Earliest finish date (calendar date).
 - f. Scheduled or actual start date.
 - g. Scheduled or actual finish date.
 - h. Latest start date (calendar date).
 - i. Latest finish date (calendar date).
 - j. Monetary value of activity.
 - k. Responsibility for activity (prime; subcontractors, suppliers, etc.).
 - l. Personnel required.
 - m. Percentage of activity completed as of each report.
 - n. Contractor's earnings based on portion of work completed.
 - o. Bid item of which activity is part.
3. In addition to activity tabulation, include identification of planned expedited activities using overtime or double shifts, including possible Saturday, Sunday, or Holiday work.
4. Provide on-site manpower loading schedule and description of major construction equipment planned for Project operations.
5. Generate computer printout sorting certain classes of frequently used data into groups as follows:

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- a. By preceding event number, from lowest to highest, and then in order of following event number.
- b. By amount of slack, then in order to earliest allowable start date.

- c. In order of latest allowable start date, then in order of preceding event numbers, then in order of succeeding event numbers.
 6. Plot Schedule on large format and (36 in. x 48 in. with 1/4 in. scale for each day) office-size paper based on calendar days showing continuous flow from start to finish.
 7. Use "Primavera Project Scheduling" software, or approved equal.
 8. Provide a separate time bar for each significant construction activity. Provide a continuous vertical line to identify the first working day of each week. Use the same breakdown of units of the Work as indicated in the "Schedule of Values." List units of work by Specification Section title.
 9. Within each time bar, indicate estimated completion percentage in 10 percent increments. As Work progresses, place a contrasting mark in each bar to indicate Actual Completion. Allow space for notations and future revisions.
 10. Prepare the schedule on a sheet, or series of sheets, of stable transparency, or other reproducible media, of sufficient width to show data for the entire construction period.
 11. Secure time commitments for performing critical elements of the Work from parties involved. Coordinate each element on the schedule with other construction activities; include minor elements involved in the sequence of the Work. Show each activity in proper sequence. Indicate graphically the sequences necessary for completion of related portions of the Work.
 12. Coordinate the Contractor's Construction Schedule with the Schedule of Values, list of subcontracts, Submittal Schedule, progress reports, payment requests, and other schedules.
 13. Indicate completion in advance of the date established for Substantial Completion. Indicate Substantial Completion on the schedule to allow time for the Contracting Officer's procedures necessary for certification of Substantial Completion.
- B. Phasing: On the schedule, show how requirements for phased completion to permit partial occupancy by the Government affect the sequence of Work.
- C. Distribution: Following response to the initial submittal, print and distribute copies to the Contracting Officer, subcontractors, and other parties required to comply with scheduled dates. Post copies in the Project meeting room and temporary field office.
1. When revisions are made, distribute to the same parties and post in the same locations. Delete parties from distribution when they have completed their assigned portion of the Work and are no longer involved in construction activities.
 2. Instruct recipients to report promptly to Contractor, in writing, problems apparent from projections shown on Schedule.
- D. Schedule Updating: Revise the schedule after each meeting, event, or activity where revisions have been recognized or made. Issue the updated schedule to the Contracting Officer twice monthly; on the 15th and on the last business day of the month concurrent with Application for Payment.
- E. Submit Project Schedule for approval within 10 days of Notice to Proceed.

1.05 SUBMITTAL SCHEDULE

- A. After development and acceptance of the Contractor's Progress Schedule, Contractor shall prepare a complete schedule of submittals. Submit the schedule within 10 days of the date of the contracting Officers acceptance of the contractor's Progress Schedule.
 - 1. Coordinate Submittal Schedule with the list of subcontracts, Schedule of Values, and the list of products as well as the Contractor's Progress Schedule.
 - 2. Prepare the schedule in chronological order. Provide the following information:
 - a. Scheduled date for the first submittal.
 - b. Related Section number.
 - c. Submittal category (Shop Drawings, Product Data, or Samples).
 - d. Name of the subcontractor.
 - e. Description of the part of the Work covered.
 - f. Scheduled date for resubmittal.
 - g. Scheduled date for the Contracting Officer's final release or approval.
- B. Distribution:
 - 1. Following response to the initial submittal, print and distribute copies to the contracting Officer, subcontractors, and other parties required to comply with submittal dates indicated.
 - 2. Post copies in the Project meeting room and field office.
 - 3. When revisions are made, distribute to the same parties and post in the same locations.
 - 4. Delete parties from distribution when they have completed their assigned portion of the Work and are no longer involved in construction activities.
- C. Schedule Updating: Revise and reissue the updated schedule concurrently with each Application for Payment.

1.06 DAILY CONSTRUCTION REPORTS

- A. Prepare a daily construction report recording the following information concerning events at the site, and submit duplicate copies to the Contracting Officer at weekly intervals:
 - 1. List of subcontractors at the site.
 - 2. Approximate count of personnel at the site.
 - 3. High and low temperatures, general weather conditions.
 - 4. Accidents and unusual events.
 - 5. Meetings and significant decisions.
 - 6. Stoppages, delays, shortages, and losses.
 - 7. Meter readings and similar recordings.
 - 8. Emergency procedures.
 - 9. Orders and requests of governing authorities.
 - 10. Change Orders received, implemented.
 - 11. Services connected, disconnected.
 - 12. Equipment or system tests and startups.

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13. Partial Completions, occupancies.
14. Substantial Completions authorized.

1.07 SHOP DRAWINGS

A. General:

1. Submit newly prepared information drawn accurately to scale.
2. Highlight, encircle, or otherwise indicate deviations from the Contract Documents.
3. Do not reproduce Contract Documents or copy standard information as the basis of Shop Drawings.
4. Standard information prepared without specific reference to the Project is not a Shop Drawing.

B. Shop Drawings include fabrication and installation Drawings, setting diagrams, schedules, patterns, templates and similar Drawings; include the following information:

1. Dimensions; anchorage and fastening details including size and spacing; gages, thickness, welding details and joint types.
2. Identification of products and materials included by sheet and detail number, with appropriate trade names.
3. Compliance with specified standards.
4. Notation of coordination requirements.
5. Notation of dimensions established by field measurement.
6. Sheet Size: Except for templates, patterns and similar full-size Drawings, submit Shop Drawings on sheets at least 8 ½ by 11 inches but no larger than 30 by 42 inches.
7. Each submittal: Submit one correctable, translucent, reproducible print and three blue or black-line prints. The reproducible print will be returned.
8. Do not use Shop Drawings without an appropriate final stamp indicating action taken.

1.08 PRODUCT DATA

A. Collect Product Data into a single submittal for each element of construction or system. Product Data includes printed information, such as manufacturer's installation instructions, catalog cuts, standard color charts, roughing-in diagrams and templates, standard wiring diagrams, and performance curves.

1. Mark each copy to show applicable choices and options. Where printed Product Data includes information on several products that are not required, mark copies to indicate the applicable information. Include the following information:
 - a. Manufacturer's printed recommendations.
 - b. Compliance with trade association standards.
 - c. Compliance with recognized testing agency standards.
 - d. Application of testing agency labels and seals.
 - e. Notation of dimensions verified by field measurement.
 - f. Notation of coordination requirements.
2. Do not submit Product Data until compliance with requirements of the Contract Documents has been confirmed.

3. Submittals: Submit 4 copies of each required submittal. The Contracting Officer will return one marked with action taken and corrections or modifications required.
4. Distribution: Furnish copies of final submittal to installers, subcontractors, suppliers, manufacturers, fabricators, and others required for performance of construction activities. Show distribution on transmittal forms.
 - a. Do not proceed with installation until a copy of reviewed Product Data is in the Installer's possession.
 - b. Do not permit use of unmarked copies of Product Data in connection with construction.

1.09 SAMPLES

- A. Submit full-size, fully fabricated Samples cured and finished as specified and physically identical with the material or product proposed. Samples include partial sections of manufactured or fabricated components, cuts or containers of materials, color range sets, and swatches showing color, texture, and pattern.
 1. Submit Samples in the manner to facilitate review of qualities indicated. Include the following:
 - a. Specification Section number and reference.
 - b. Generic description of the Sample.
 - c. Sample source.
 - d. Product name or name of the manufacturer, including any catalogue or other identification number
 - e. Compliance with recognized standards.
 - f. Availability and delivery time.
 2. Submit Samples for review of size, kind, color, pattern, and texture. Submit Samples for a final check of these characteristics with other elements and a comparison of these characteristics between the final submittal and the actual component as delivered and installed.
 - a. Where variation in color, pattern, texture, or other characteristic is inherent in the material or product represented, submit at least 3 multiple units that show approximate limits of the variations.
 - b. Refer to other Specification Sections for requirements for Samples that illustrate workmanship, fabrication techniques, details of assembly, connections, operation, and similar construction characteristics.
 - c. Refer to other Sections for Samples to be returned to the Contractor for incorporation in the Work. Such Samples must be undamaged at time of use. On the transmittal, indicate the Work. Such Samples must be undamaged at time of use. On the transmittal, indicate special requests regarding disposition of Sample submittals.
 - d. Samples not incorporated into the Work, or otherwise designated as the Government's property, are the property of the Contractor and shall be removed from the site prior to Substantial Completion.
 3. Preliminary Submittals: Submit a full set of choices where Samples are submitted for selection of color, pattern, texture, or similar characteristics from a range of standard choices.

- a. The Contracting Officer will review and return preliminary submittals with the notations indicating selection and other action.
- 4. Submittals: Except for Samples illustrating assembly details, workmanship, fabrication techniques, connections, operation, and similar characteristics, submit 3 sets. The Contracting Officer will return one set marked with the action taken.
- 5. Maintain sets of Samples, as returned, at the Project Site, for quality comparisons throughout the course of construction.
 - a. Unless noncompliance with Contract Document provisions is observed, the submittal may serve as the final submittal.
- B. Distribution of Samples: Prepare and distribute additional sets to subcontractors, manufacturers, fabricators, suppliers, installers, and others as required for performance of the Work. Show distribution on transmittal form.

1.10 QUALITY ASSURANCE SUBMITTALS

- A. Submit quality-control submittals, including design data, certifications, manufacturer's instructions, manufacturer's field reports, and other quality-control submittals as required under other Sections of the Specifications.
- B. Certifications: Where other Sections of the Specifications require certification that a product, material or installation complies with specified requirements, submit a notarized certification from the manufacturer certifying compliance with specified requirements.
 - 1. Signature: Certification shall be signed by an officer of the manufacturer or other individual authorized to sign documents on behalf of the company.
- C. Inspection and Test Reports: Requirements for submittal of inspection and test reports from independent testing agencies are specified in Division 1 Section "Quality Control."

1.11 CONSTRUCTION PHOTOGRAPHS

- A. General: The Contractor shall employ a competent photographer to take construction record photographs monthly during course of Work.
- B. Provide photographs taken monthly, and at completion of major stages of construction including:
 - 1. Excavations.
 - 2. Foundations.
 - 3. Framing.
 - 4. Enclosure of building, including roofing.
 - 5. Pavements and curbing.
 - 6. Major equipment installations.
- C. View and Quantities Required: At each specified time, photograph Project from three different views approved by the Contracting Officer. Provide three prints of each view.

- D. Negatives: Negatives shall remain property of photographer. Require that photographer maintain negatives for two years from Date of Substantial Completion of Project.
- E. Costs of Photography: The Contractor shall pay costs for specified photography and prints. Parties requiring additional photography or prints will pay photographer directly. Furnish additional prints to the Contracting Officer at commercial rates applicable at time of purchase.
- F. Prints: Provide 8 in x 10 in color prints on single weight print paper. Provide smooth surface, glossy finish.
- G. Identify each print back, listing name of project, orientation of view, date and time of exposure, name and address of photographer, and numbered identification of exposure.
- H. Techniques: Provide factual presentation, with correct exposure and focus, with high resolution and sharpness, maximum depth-of field, and minimum distortion.
- I. Views Required: Illustrate condition of construction and state of progress. At successive periods of photography, take at least one photograph from same overall view as previously. Consult with Contracting Officer at each period of photography for instructions concerning views required.
- J. Delivery of Prints: Deliver prints as soon as processed, two sets to the Contracting Officer and one for the Project Record File.

1.12 GOVERNMENT'S ACTIONS

- A. General: Contracting Officer will review submittals, stamp and indicate action, and return to Contractor. Contracting Officer will review submittals for the limited purpose of checking for conformance with information given and the design concept expressed in the contract Documents. Contracting Officer's review and approval of submittals shall be held to limitations stated in the conditions of the Contract. In no case shall approval or acceptance by Contracting Officer be interpreted as release of Contractor of responsibility to fulfill requirements of Contract Documents. No acceptance or approval of submittals, nor any indication or note marked by Contracting Officer on submittals, shall constitute authorization for increase in Contract Sum.
- B. Contracting Officer will annotate the transmittal for each submittal with an action required by the Contractor. Comments will indicate action taken as follows:
 - 1. "APPROVED": No corrections, no marks: Resubmission no required.
 - 2. "APPROVED AS NOTED": Minor amount of corrections; all items can be fabricated without further corrections to original submittal; checking is complete and all corrections are deemed obvious without ambiguity. Resubmission not required.
 - 3. "APPROVED EXCEPT AS NOTED": Minor corrections required; items noted shall not be fabricated until further corrections of original submittal is completed and Contracting Officer approval is obtained; checking is complete; clarify details of items

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noted by checker for approval; items without marks may be fabricated without further submittal. Resubmission required.

4. "DISAPPROVED": Submittal does not conform to Contract Documents, and requires too many corrections, or is rejected for other justifiable reasons. Contracting Officer will state reasons for rejection. Correct and resubmit. Do not fabricate.

C. Other Action: Submittal for information or record purposes will be returned with no action marked.

D. Required Resubmittals: Make corrections or changes to submittals required by Contracting Officer and resubmit until approved. Revise initial shop drawings or product data. And resubmit as specified for initial submittal. Indicate changes made other than those requested by Contracting Officer. Submit new samples as required for initial submittal.

1.13 DISTRIBUTION BY CONTRACTOR

- A. Distribution: When submittal is marked "APPROVED", or "APPROVED AS NOTED", make prints and copies and distribute to the Contracting Officer, subcontractors, suppliers, fabricators, and other parties requiring information from submittal for proper coordination and performance or Work. Print copies of shop drawings from approved reproducible only.

PART 2 PRODUCTS

NOT USED

PART 3 EXECUTION

NOT USED

END OF SECTION 01330

SECTION 01400 - QUALITY CONTROL

PART 1 GENERAL

1.01 DESCRIPTION OF REQUIREMENTS

- A. General: Required inspection and testing services are intended to assist in the determination of probable compliance of the work with requirements specified or indicated. These required services do not relieve the Contractor of responsibility for compliance with these requirements or for compliance with requirements of the contract documents.
- B. Definitions: Quality control services include inspections, tests and related actions including reports performed by independent agencies and governing authorities, as well as directly by the Contractor. These services do not include contract enforcement activities performed directly by the Contracting Officer.
 - 1. Specific quality control requirements for individual units of work are specified in the sections of these specifications that specify the individual element of the work. These requirements, including inspections and tests, cover both production of standard products and fabrication of customized work. These requirements also cover quality control of the installation procedures.
 - 2. Inspections, tests and related actions specified in this section and elsewhere in the contract documents are not intended to limit the Contractor's own quality control procedures which facilitate overall compliance with requirements of the contract documents.
 - 3. Requirements for the Contractor to provide quality control services as required by the Government, governing authorities or other authorized entities are not limited by the provisions of this section.
- C. The Contractor shall employ and pay for the services of an independent testing laboratory, approved by the Contracting Officer, to perform (continuous) inspections as required, testing, Contracting Officer, and other specified services; to include, but not limited to:
 - 1. Soils: Inspect and test;
 - 2. Concrete: Design all mixes to contract requirements and test same;
 - a. Inspect reinforcement;
 - b. Inspect placement;
 - c. Perform seven (7) and twenty-eight (28) day tests on specimen cylinders;
 - 3. Sub-base, base and surface courses of bituminous paving;
 - 4. Reports: Prepare and distribute inspection and test reports;
 - 5. Miscellaneous: Perform any additional inspections or tests required by the legal authorities having jurisdiction.
- D. The Contracting Officer will employ services of an independent testing laboratory to perform testing on any additional material which the Contracting Officer feels may not comply with contract document requirements.

1. If results of these tests show that material does not conform to the requirements of the contract documents, the cost of testing shall be borne by the Contractor.
2. If results of these tests show that material conforms to the requirements of the contract documents, the cost of testing shall be borne by the Government.

1.02 RESPONSIBILITIES

A. Contractor Responsibilities:

1. Use of testing services shall in no way relieve the Contractor of responsibility to furnish materials and construction in compliance with drawings and specifications.
2. When the Contractor's work will require inspection or test, the Contractor shall notify the Government twenty-four (24) hours in advance of such required tests or inspections.
3. At least twenty-four (24) hours shall be allowed for the inspection prior to any test or concrete placement. The inspection will be made after notification that all items have been installed for the test or preparatory for concrete placement. Should the inspection reveal that corrective measures are required or that the work is not complete, an additional twenty-four (24) hours will be allowed to complete the inspection after all work has been corrected or completed.
4. The Government shall be notified at least twenty-four (24) hours in advance of backfilling or encasing of any underground utility in order that an inspection may be made of the installation. Failure to provide such notification may require reopening of the trench, at the Contractor's expense.
5. Cooperate with laboratory personnel. Provide access to work and to manufacturer's operations.
6. Provide to the laboratory and the Contracting Officer for review the preliminary design mix proposed to be used for concrete and other material mixes which require control by the testing laboratory.
7. Furnish copies of products test reports as required.
8. Furnish incidental labor and facilities:
 - a. to provide access to work to be tested.
 - b. to facilitate inspections and tests.
 - c. for storage and curing of test samples.
9. Provide and maintain, for the sole use of the testing agency, adequate area and curing box for the safe storage and proper curing of concrete test cylinders on the project site for the first twenty-four (24) hours, in accordance with ASTM C 31.
10. Furnish copies of mill test reports of shipments of cement and reinforcing steel to the Contracting Officer and testing agency, if required.
11. Notify laboratory sufficiently in advance of operations to allow for laboratory assignments of personnel and scheduling of tests. Procedure shall be as determined at a pre-construction meeting between the Contracting Officer, the Contractor and the testing laboratory representative.
 - a. When tests or inspections cannot be performed after such notice, reimburse the Government for laboratory personnel and travel expenses incurred due to the Contractor's negligence.
12. Employ and pay for the services of the same or a separate, equally qualified independent testing laboratory, approved by the Government, to perform additional inspections, sampling and testing required:

- a. for the Contractor's convenience.
 - b. when initial tests indicate that work does not comply with contract documents.
- B. Retest Responsibility: Where results of required inspections, tests or similar services prove unsatisfactory and do not indicate compliance of related work with the requirements of the contract documents, then retests are the responsibility of the Contractor, regardless of whether the original test was the Contractor's responsibility. Retesting of work revised or replaced by the Contractor is the Contractor's responsibility, where required tests were performed on original work.
- C. Responsibility for Associated Services: The Contractor is required to cooperate with the independent agencies performing required inspections, tests and similar services. Provide such auxiliary services as are reasonably requested. Notify the testing agency sufficiently in advance of operations to permit assignment of personnel. These auxiliary services include, but are not necessarily limited to, the following:
 - 1. Providing access to the work
 - 2. Taking samples or providing assistance with taking samples
 - 3. Delivery of samples to test laboratories
 - 4. Security and protection of samples and test equipment at the project site
- D. Coordination: The Contractor and each independent agency engaged to perform inspections, tests and similar services for the project shall coordinate the sequence of their activities so as to accommodate required services with a minimum of delay in the progress of the work. In addition, the Contractor and each independent testing agency shall coordinate their work so as to avoid the necessity of removing and replacing work to accommodate inspection and tests. The Contractor is responsible for scheduling times for inspections, tests, taking samples and similar activities.

1.03 SCHEDULE OF SERVICES

- A. Schedule of Inspection and Tests: Submit a schedule of inspections, tests and similar services required by the contract documents within thirty (30) days of the date of the notice to proceed. The schedule shall be in tabular form and shall include, but not be limited to, the following data:
 - 1. Reference to specification section number and unit of work
 - 2. Description of test
 - 3. Identification of applicable standards and test methods
 - 4. Number of tests required
 - 5. Time schedule or time span for tests
 - 6. Entity responsible for performing tests
 - 7. Requirements for taking samples
 - 8. Unique characteristics of each service

1.04 QUALITY ASSURANCE

- A. Qualification for Service Agencies: Except as otherwise indicated, engage inspection and test service agencies, including independent testing laboratories, which are pre-qualified as complying with "Recommended Requirements for Independent Laboratory Qualification" by the American Council of Independent Laboratories, and which are recognized in the industry as specialized in the types of inspections and tests to be performed. Testing laboratories shall also meet the following requirements:
1. Meet basic requirements of ASTM E 329, "Standards of Recommended Practice for Inspection and Testing Agencies for Concrete and Steel as Used in Construction".
 2. Authorized to operate in the state, city and town in which the project is located.
 3. Submit a copy of the inspection report of the facilities made by the Material Reference Laboratory of the National Bureau of Standards during the most recent tour of inspection, with a memorandum of remedies of any deficiencies reported by the inspection.
 4. Testing Equipment:
 - a. Calibrated at reasonable intervals by devices of accuracy traceable to either:
 - 1) the National Bureau of Standards, or
 - 2) accepted values of natural physical constants.
- B. Guarantees:
1. Unless otherwise provided in these specifications, the Contractor guarantees all work to be in accordance with contract requirements and free from defective or inferior materials, equipment, and workmanship which, in his opinion, are inferior, defective, or not in accordance with the terms of the contract, he will so inform the Contractor in writing and the Contractor shall promptly and without additional expense to the Government:
 2. If, within any guarantee, the Contracting Officer finds that quarantined work needs to be repaired or changed because of the use of materials, equipment, or workmanship which, in his opinion, are inferior, defective, or not in accordance with the terms of the contract, he will so inform the Contractor in writing and the Contractor shall promptly and without additional expense to the Government:
 - a. Place in a satisfactory condition all of such guaranteed work.
 - b. Satisfactorily correct all damages to equipment, the site, the building, or contents thereof, which is the result of such unsatisfactory guaranteed work; and
 - c. Satisfactorily correct any work, materials, and equipment that are disturbed in fulfilling the guarantee, including any disturbed work, materials, and equipment that may have been guaranteed under another contract.
 - d. Should the Contractor fail to proceed promptly in accordance with the guarantee, the Government may have such work performed at the expense of the Contractor.
 3. Any special guarantees that may be required under the contract shall be subject to the stipulations set forth herein, insofar as they do not conflict with the provisions of such special guarantees.
 4. The Contractor shall obtain each transferable guarantee of equipment, materials, or installation thereof which is furnished by any manufacturer, supplier, or installer. In

addition, the Contractor shall obtain and furnish to the Government all information which is required in order to make any such guarantee legally binding and effective, and shall submit both the information and the guarantee to the Government in sufficient time to permit the Government to meet any time limit requirements specified in the guarantee or, if no time limit is specified, prior to completion and acceptance of all work under this contract.

1.05 LABORATORY DUTIES

- A. Cooperate with the Contracting Officer and Contractor: Provide qualified personnel after due notice.
- B. Notify the Contracting Officer promptly after review of Contractor's proposed design mix for concrete and other material mixes which require control by the testing laboratory so that the Contracting Officer can approve, disapprove or modify them.
- C. Secure adequate quantities of representational samples of materials proposed to be used and which require testing. Furnish incidental labor and facilities to obtain and handle samples at the project site or at the source of the product to be tested.
- D. Perform specified inspections, sampling and testing of materials and methods of construction:
 - 1. Comply with specified standards.
 - 2. Ascertain compliance of materials with requirements of contract documents.
- E. Promptly notify the Contracting Officer and the Contractor of observed irregularities or deficiencies of work or products.
- F. Work will be checked as it progresses. Failure to detect defective work or materials shall in no way prevent later rejection when such defect is discovered. Failure to detect defective work shall not obligate the Contracting Officer for final review.
- G. Promptly submit a typed or legibly printed report of each test and inspection. Distribution of reports shall be determined at a pre-construction meeting between the Contracting Officer, the Contractor and a representative of the testing laboratory. Each report shall include:
 - 1. Date issued
 - 2. Project title and number
 - 3. Testing laboratory name, address and telephone number
 - 4. Name and signature of laboratory inspector
 - 5. Date and time of sampling or inspection
 - 6. Record of temperature and weather conditions
 - 7. Date of test
 - 8. Identification of product and specification section
 - 9. Location of sample or test in the project
 - 10. Type of inspection or test
 - 11. Results of tests and compliance with contract documents
 - 12. Interpretation of test results, when requested by the Contracting Officer

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- H. Perform additional tests as required by the Contracting Officer if there is cause for concern that a particular material may not comply with contract document requirements.

1.06 LIMITATIONS OF AUTHORITY OF TESTING LABORATORY

- A. The laboratory is not authorized to:
 - 1. release, revoke, alter or enlarge upon requirements of the contract documents.
 - 2. approve or accept any portion of the work.
 - 3. perform any duties of the Contractor.

PART 2 PRODUCTS

NOT USED

PART 3 EXECUTION

3.01 REPAIR AND PROTECTION

- A. General: Upon completion of inspection, testing, sample-taking and similar services performed on the work, repair damaged work and restore substrates and finishes to eliminate deficiencies, including deficiencies in the visual qualities of exposed finishes. Comply with the contract document requirements for "cutting and patching". Protect work exposed by or for quality control service activities, and protect repaired work. Repair and protection is the Contractor's responsibility, regardless of the assignment of responsibility for inspection, testing or similar services.

END OF SECTION 01400

SECTION 01410 - TESTING LABORATORY SERVICES

PART 1: GENERAL

1.01 REQUIREMENTS INCLUDED

The Contracting Officer, through the Consultant, will provide area and final air testing. The Contractor shall provide personal sample analysis for the protection of his/her employees.

1.02 AIR SAMPLING FOR ASBESTOS ABATEMENT PROJECTS

- A. Air sampling will be conducted in accordance with the NIOSH Standard Analytical Method 7400 for the sampling and analysis of airborne asbestos fibers.
- B. Flow Rate: Area Samples (Phase Contrast Microscopy) - The flow rate for background, in-progress and clearance samples will not be less than 0.5 liters/minute and must not exceed 16 liters/minute.
- C. Background samples may be collected prior to initiation of abatement activity in each area. A sufficient number of samples will be taken which are statistically unbiased and representative of airborne fiber concentrations throughout the proposed asbestos control area. For multiple room containments, background samples will be typically collected in each room.
- D. In-progress samples may be collected during each work shift, as directed by the Consultant.
- E. Sampling:
 - 1. Air sampling pumps:
 - a. Area samples typically will be collected with a stationary high volume pump, which is capable of sampling at flow rates ranging from 0.5 liters/minute to 16 liters/minute.
 - b. Air sampling pumps will be calibrated before and after each use by means of a primary standard or by a secondary standard (e.g., rotometer) that has been calibrated against a primary standard within the last 180 days.
 - 2. Filters will be PCM-cellulose ester with 0.8 to 1.2-micron pore size.
 - 3. Cassettes will consist of a 3-piece, 25-mm, open-faced cassette which contains a membrane filter, a support pad and two sealing caps. A minimum of two blanks must always be submitted for analysis, or 10 percent of total samples, whichever is greater.

4. Number of in-progress samples typically will be dependent on the size of the regulated area; the number of in-progress samples required may vary. The number of samples specified below are intended as guidelines; however, the actual numbers may be increased or decreased based upon site constraints and the judgment of the Consultant.
 - a. Phase Contrast Microscopy:
 1. For mini-enclosures (such as that used for glove-bag removal) collect a up to two samples inside and one sample outside (per shift).
 2. For full containments, collect up to two samples at various points inside the containment and two samples outside (per shift). Samples may be located in decontamination units, clean rooms, the perimeter of the regulated area, and in bag out or waste loading areas. For multiple room abatements within the same regulated area, collect one sample per room.
 - b. All asbestos air samples collected under this specification will be accompanied by a completed chain-of-custody form.
5. Number of clearance and final clearance samples will be dependent on the size of the regulated area, the number of clearance samples will vary. Aggressive sampling procedures for clearance will be used for containments and multiple room regulated areas. The number of samples specified below are intended as guidelines; however, the actual number will be increased or decreased based upon site constraints and the judgment of the Consultant.
 - a. Phase Contrast Microscopy:
 1. At least one sample for each 500 linear/1000 square feet of asbestos or portion thereof, or one sample per room which ever is greater.
 - b. The Contractor can assume that clearance testing will take approximately four hours from initiation until results are available.
6. Personal Sampling: Personal samples will be collected and analyzed in accordance with the OSHA Reference Method (ORM) (See U.S. Department of Labor; Occupational Safety and Health Administration; Occupational Exposure to Asbestos; Title 29 CFR 1910.1001, "General Industry Standard." Title 29 CFR 1926.1101, "Construction Standard").
 - Personal air sampling collection and analysis shall be the responsibility of the Contractor.

- Documentation for personal sampling must be available at the job site for review by federal and/or regulatory agencies.

G. Aggressive Sampling:

1. Blow Down: The Abatement Monitor will direct the exhaust from an appropriately sized leaf blower (minimum one horsepower) against all containment walls, ceilings and other surfaces to render remaining fibers airborne. Five minutes per 1,000 square feet of floor area will be required.
2. Air Movement: The Abatement Monitor will place a 20-inch propeller fan in the center of the containment and so that the fan remains activated during the sampling period. One fan will be used for each 10,000 cubic feet.
3. Air Sampling: The Abatement Monitor will collect the requisite number of air samples for the required time to ensure adequate sample volumes.
4. Sampling Restriction: Aggressive air sampling will be performed for clearance of the regulated area. In the event that asbestos building materials remain in regulated areas, the materials will be properly encapsulated or enclosed to facilitate aggressive air sampling.

1.05 CONTRACTOR RESPONSIBILITIES

The Contractor shall:

- A. Provide access to work.
- B. Provide incidental labor and facilities to provide access to work to be evaluated, to obtain and handle samples at the site or at source of products to be evaluated and to facilitate tests and evaluations.
- C. Notify the Consultant in writing 24 hours prior to expected time for operations requiring visual evaluation and PCM or testing services.
- D. Conduct personal air sampling for asbestos.
- E. Contractor shall bear all costs for re-testing of work area(s), including, but not limited to consultant costs and Owner's administrative costs, where initial clearance testing does not meet the requirements of these specifications and current regulations.

1.06 LABORATORY CERTIFICATION REQUIREMENTS

- A. Laboratories analyzing asbestos air samples will be AIHA accredited and be participants in the PAT program for asbestos analysis by phase contrast microscopy under NIOSH Method 7400.

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PART 2 - PRODUCTS - NOT USED

PART 3 - EXECUTION - NOT USED

END OF SECTION

SECTION 01500 - TEMPORARY FACILITIES AND CONTROLS

PART 1 GENERAL

1.01 SUMMARY

A. Section Includes:

1. Requirements for temporary facilities and controls, including temporary utilities, support facilities, and security and protection facilities.
2. Temporary utilities include, but are not limited to, following:
 - a. Drainage.
 - b. Water service and distribution.
 - c. Sanitary facilities, including toilets, wash facilities, and drinking-water facilities.
 - d. Heating facilities.
 - e. Electric power service.
 - f. Telephone, facsimile, and modem service.
3. Support facilities include, but are not limited to, following:
 - a. Dewatering facilities and drains.
 - b. Project identification and temporary signs.
 - c. Waste disposal facilities.
 - d. Field offices.
 - e. Storage and fabrication sheds.
 - f. Lifts and hoists.
 - g. Construction aids and miscellaneous services and facilities.
4. Security and protection facilities include, but are not limited to, following:
 - a. Environmental protection.
 - b. Stormwater control.
 - c. Security enclosure and lockup.
 - d. Barricades, warning signs, and lights.
 - e. Temporary enclosures.
 - f. Temporary partitions.
 - g. Fire protection.

B. Related Sections:

1. 01330, Submittal Procedures; for procedures for submitting copies of Implementation and Termination Schedule and Utility Reports.
2. 01770, Closeout Procedures; for progress cleaning requirements.
3. 02300, Earthwork; for disposal of ground water at Project site.
4. Divisions 2 through 16; for temporary heat, ventilation, and humidity requirements for products in those Sections.

1.02 USE CHARGES

A. General:

1. Cost or use charges for temporary facilities are not chargeable to Government or Contracting Officer.
2. Include costs in Contract Sum.
3. Allow other entities to use temporary services and facilities without cost including, but not limited to, following:
 - a. Government's personnel.
 - b. Occupants of Project, where construction activities disrupt permanent utility services to occupied areas of Project.
 - c. Contracting Officer.
 - d. Testing agencies, as required to perform testing and inspection work of Project.
 - e. Personnel of authorities having jurisdiction, as required to perform inspection work of Project.
 - f. Subcontractors, as required to perform their work.

B. Existing Utilities:

1. General:
 - a. Government will designate location for Contractor's connection to existing utility services provided and paid for by Government.
 - b. Provide connections to, and extensions of, existing utility services for construction activities from designated utility service connection location.
 - c. Relocate or discontinue temporary utility connections and extensions as construction work progresses.
 - d. If Government's Representative determines Contractor's use of existing utility service of any type provided by Government is wasteful, Government shall revoke free utility service.
 - e. If revocation of utility service is mandated by Government, install meter required for type of existing utility service being revoked.
 - f. All costs for revoked existing utility service will be deducted from progress payments.
2. Drainage: Connect to and use Government's existing drainage system without metering and without paying use charges.
3. Water Service: Connect to and use water from Government's existing water system without metering and without paying use charges.
4. Heat Service:
 - a. Provide heat used by all entities engaged in construction activities at Project site, except for heating and enclosures required for exterior masonry construction (provided by Section 04200).

5. Electric Power Service:
 - a. Connect to and use electric power from Government's existing system without metering and without paying use charges.
 - b. If connection to, and use of, existing electrical power results in surges, brownouts, or blackouts in existing occupied areas, provide supplemental electrical service for construction and surge protection for existing electrical service, and restrict usage of Government's existing electrical service to prevent damage to existing electrical equipment and machinery.
6. Telephone and Facsimile Service: Pay telephone use charges for telephone usage by all parties engaged in construction at Project site, except where coin-operated telephone station is provided for construction personnel for personal usage.

1.03 QUALITY ASSURANCE

- A. Standards: Comply with ANSI A10.6, NECA's Temporary Electrical Facilities, and NFPA 241.
 1. Trade Jurisdictions: Assigned responsibilities for installation and operation of temporary utilities are not intended to interfere with trade regulations and union jurisdictions.
 2. Electric Service:
 - a. Comply with NECA, NEMA, and UL standards and regulations for temporary electric service.
 - b. Install service to comply with NFPA 70.
- B. Tests and Inspections: Arrange for authorities having jurisdiction to test and inspect each temporary utility before use and obtain required certifications and permits.

1.04 PROJECT CONDITIONS

- A. Temporary Utilities:
 1. At earliest feasible time acceptable to Government, change over from temporary service usage to permanent service usage.
 2. Temporary Use of Permanent Facilities: Installer of each permanent service shall assume responsibility for operation, maintenance, and protection of each permanent service during its use as construction facility before Government's acceptance, regardless of previously-assigned responsibilities.
- B. Conditions of Use: Following conditions apply to use of temporary services and facilities by all parties engaged in work.
 1. Keep temporary services and facilities clean and neat.
 2. Relocate temporary services and facilities as required by progress of work.

PART 2 PRODUCTS

2.01 MATERIALS

- A. General:
 - 1. Provide new materials.
 - 2. Undamaged, previously-used materials in serviceable condition may be used if approved by Contracting Officer.
 - 3. Provide materials suitable for use intended.
- B. Tarpaulins: Fire-resistive-labeled with 15 or less flame-spread rating.
- C. Water: Potable.

2.02 EQUIPMENT

- A. General: Provide equipment suitable for use intended.
- B. Field Offices: Prefabricated, mobile units, or job-built construction with lockable entrances, operable windows, and serviceable finishes; heated and air conditioned; on foundations adequate for normal loading.
- C. Fire Extinguishers:
 - 1. Hand-carried, portable, UL-rated; provide class and extinguishing agent as indicated or combination of extinguishers of NFPA-recommended classes for exposures.
 - 2. Comply with NFPA 10 and NFPA 241 for classification, extinguishing agent, and size required by location and class of fire exposure.
- D. Self-Contained Toilet Units: Single-occupant units of chemical, aerated recirculation, or combustion-type; vented; fully enclosed with glass-fiber-reinforced polyester shell or similar nonabsorbent material.
- E. Drinking Water Fixtures: Containerized, tap-dispenser, bottled-water drinking-water units, including paper cup supply.
- F. Electrical Outlets: Properly configured, NEMA-polarized outlets to prevent insertion of 110 to 120 V plugs into higher-voltage outlets; equipped with ground-fault circuit interrupters, reset button, and pilot light.
- G. Power Distribution System Lighting Circuits: Where permitted for overhead and exposed installations for surveillance and wiring circuits not exceeding 125 VAC, 20-A rating; use of nonmetallic sheathed cable is allowed.

PART 3 EXECUTION

3.01 INSTALLATION

A. General:

1. Locate facilities where they will serve Project adequately and result in minimum interference with performance of work.
2. Relocate and modify facilities as required.
3. Provide each facility ready for use when needed to avoid delay.
4. Maintain and modify as required.
5. Do not remove until facilities are no longer needed or have been replaced by completed permanent facilities authorized for temporary services.

3.02 SUPPORT FACILITIES INSTALLATION

A. General:

1. Locate field offices, storage sheds, sanitary facilities, and other temporary construction and support facilities for easy access.
2. Provide incombustible construction for offices, shops, and sheds located within construction area or within 30 ft. (9m) of building lines; comply with NFPA 241.
3. Maintain support facilities until Substantial Completion.
4. Remove before Substantial Completion.
5. Personnel remaining after Substantial Completion will be permitted to use permanent facilities as acceptable to Government.

B. Dewatering Facilities and Drains:

1. Comply with requirements in applicable Division 2 Sections for temporary drainage and dewatering facilities and operations not directly associated with construction activities included in individual Sections.
2. Where feasible, use same facilities.
3. Maintain Project site, excavations, and construction free of water.
4. Dispose of rainwater in lawful manner that will not result in flooding Project or adjoining property nor endanger permanent work or temporary facilities.
5. Before connection and operation of permanent drainage piping system, provide temporary drainage where roofing or similar waterproof deck construction is completed.

C. Project Identification and Temporary Signs:

1. Prepare Project identification and other signs in sizes indicated.
2. Install signs where indicated to inform public and persons seeking entrance to Project.
3. Do not permit installation of unauthorized signs.
4. Engage experienced sign painter to apply graphics for Project identification signs.
5. Comply with indicated details.
6. Prepare temporary signs to provide directional information to construction personnel and visitors.

7. Construct signs of 4' x 8' x $\frac{3}{4}$ " exterior-type Grade B-B high-density concrete form overlay plywood or of sizes and thicknesses indicated.
8. Support on posts or framing of preservative-treated wood or steel.
9. Paint sign panel and applied graphics with exterior-grade alkyd gloss enamel over exterior primer.

D. Waste Disposal Facilities:

1. Provide waste-collection containers in sizes adequate to handle waste from construction operations.
2. Containerize and clearly label hazardous, dangerous, or unsanitary waste materials separately from other waste.

E. Janitorial Services: Provide janitorial services on daily basis for temporary offices, first-aid stations, toilets, wash facilities, lunchrooms, and similar areas.

F. Common-Use Field Office:

1. Provide insulated, weathertight, air-conditioned field office for use as common facility by all personnel engaged in construction activities; of sufficient size to accommodate required office personnel and meetings of 10 persons at Project site.
2. Keep office clean and orderly.
3. Furnish and equip offices as follows:
 - a. Desk and four chairs, four-drawer file cabinet, plan table, plan rack, and bookcase.
 - b. Water cooler and private toilet, complete with water closet, lavatory, and medicine cabinet with mirror.
 - c. Coffee machine and supplies, including regular and decaffeinated coffee, filters, cups, stirring sticks, creamer, sugar, and sugar substitute.
 - d. Provide room min. 240 sq. ft. (22.5 sq.m) for Project meetings.
 - e. Furnish meeting room with conference table, 12 folding chairs, and 4 ft. (1.2m) square tack board.
 - f. Provide electric heater with thermostat capable of maintaining uniform 68 deg. F (20 deg.C) indoor temperature.
 - g. Provide air-conditioning unit capable of maintaining 72 deg. F (23 deg.C) indoor temperature.
 - h. Provide fluorescent light fixtures capable of maintaining average 20 fc (215 lx) illumination at desk height.
 - i. Provide 110- to 120-VAC duplex outlets spaced at max. 12 ft. (4m) intervals, 1 per wall in each room.

G. Storage and Fabrication Sheds:

1. Provide prefabricated modular sheds sized, furnished, and equipped to accommodate materials and equipment involved, including temporary utility services.

H. Lifts and Hoists:

1. Provide facilities for hoisting materials and personnel.
2. Truck cranes and similar devices used for hoisting materials are considered tools and equipment, not temporary facilities.

3.03 SECURITY AND PROTECTION FACILITIES INSTALLATION

A. Environmental Protection:

1. Provide protection, operate temporary facilities, and conduct construction to comply with environmental regulations and minimize possible air, waterway, and subsoil contamination or pollution or other undesirable effects.
2. Avoid using tools and equipment that produce harmful noise.
3. Restrict use of noisemaking tools and equipment to hours that will minimize complaints from persons or firms near Project site.

B. Stormwater Control: Provide earthen embankments and similar barriers in and around excavations and subgrade construction to prevent flooding by runoff of stormwater from heavy rains.

C. Security Enclosure and Lockup:

1. Install temporary enclosure around partially-completed areas of construction.
2. Provide lockable entrances to prevent unauthorized entrance, vandalism, theft, and similar security violations.

D. Barricades, Warning Signs, and Lights:

1. Comply with standards and code requirements for erecting structurally-adequate barricades.
2. Paint with appropriate colors, graphics, and warning signs to inform personnel and public of possible hazard.
3. Where appropriate and needed, provide lighting, including flashing red or amber lights.
4. For safety barriers, sidewalk bridges, and similar uses, provide min. 5/8 in. (16mm) thick exterior plywood.

E. Temporary Enclosures:

1. Provide temporary enclosures for protection of in-progress and completed construction from exposure, foul weather, other construction operations, and similar activities.
2. Provide temporary weathertight enclosure for building exterior.
3. Where heating or cooling is needed and permanent enclosure is not complete, provide insulated temporary enclosures.
4. Coordinate enclosure with ventilating and material drying or curing requirements to avoid dangerous conditions and effects.
5. Vertical Openings: Close openings of 25 sq. ft. (2.3 sq.m) or less with plywood or similar materials.

6. Horizontal Openings: Close openings in floor or roof decks and horizontal surfaces with loadbearing, wood-framed construction.
7. Install tarpaulins securely using fire-retardant-treated wood framing and other materials.
8. Where temporary wood or plywood enclosure exceeds 100 sq. ft. (9.2 sq.m) in area, use fire-retardant-treated material for framing and main sheathing.

F. Temporary Partitions:

1. Erect and maintain dustproof partitions and temporary enclosures to limit dust and dirt migration and to separate areas from fumes and noise.
2. Construct dustproof partitions of nominal 4 in. (100mm) studs, 5/8 in. (16mm) gypsum wallboard with joints taped on occupied side, and 1/2 in. (13mm) fire-retardant plywood on construction side.
3. Construct dustproof, floor-to-ceiling partitions of nominal 4 in. (100mm) studs, 2 layers of 3-mil (0.07mm) polyethylene sheets, inside and outside temporary enclosure.
4. Cover floor with 2 layers of 3-mil (0.07mm) polyethylene sheets, extending sheets 18 in. (460mm) up side walls; overlap and tape full-length of joints; and cover floor with 3/4 in. (19mm) fire-retardant plywood.
5. Construct vestibule and airlock at each entrance to temporary enclosure with min. 48 in. (1219mm) between doors and maintain water-dampened foot mats in vestibule.
6. Insulate partitions to provide noise protection to occupied areas, seal joints and perimeter, equip partitions with dustproof doors and security locks.
7. Protect air-handling equipment.
8. Weatherstrip openings.

G. Temporary Fire Protection:

1. Until fire protection needs are supplied by permanent facilities, install and maintain temporary fire protection facilities of types needed to protect against reasonably predictable and controllable fire losses; comply with NFPA 241.
2. Provide fire extinguishers on wall-mounted brackets, visible and accessible from space being served, with sign mounted above.
3. Locate fire extinguishers where convenient and effective for their intended purpose; providing min. 1 extinguisher on each floor at or near each usable stairwell.
4. Store combustible materials in containers in fire-safe locations.
5. Maintain unobstructed access to fire extinguishers, fire hydrants, temporary fire protection facilities, stairways, and other access routes for firefighting.
6. Prohibit smoking in hazardous fire-exposure areas.
7. Supervise welding operations, combustion-type temporary heating units, and similar sources of fire ignition.
8. Prevention and Protection Program:
 - a. Develop and supervise overall fire-prevention and first-aid fire-protection program for personnel at Project site.
 - b. Review needs with local fire department and establish procedures to be followed.
 - c. Instruct personnel in methods and procedures.
 - d. Post warnings and information.

9. Hoses:
 - a. Provide temporary standpipes and hoses for fire protection of sufficient length to reach construction areas.
 - b. Hang hoses with warning sign stating that hoses are for fire-protection purposes only and are not to be removed.
 - c. Match hose size with outlet size and equip with suitable nozzles.

3.04 OPERATION, TERMINATION, AND REMOVAL

A. Supervision:

1. Enforce strict discipline in use of temporary facilities.
2. To minimize waste and abuse, limit availability of temporary facilities to essential and intended uses.

B. Maintenance:

1. Maintain facilities in good operating condition until removal.
2. Protect from damage caused by freezing temperatures and similar elements.
3. Maintain operation of temporary enclosures, heating, cooling, humidity control, ventilation, and similar facilities on 24-hour basis where required to achieve indicated results and to avoid possibility of damage.
4. Prevent water-filled piping from freezing.
5. Maintain markers for underground lines and protect from damage during excavation operations.

C. Temporary Facility Changeover: Except for using permanent fire protection as soon as available, do not change over from using temporary security and protection facilities to permanent facilities until Substantial Completion.

D. Termination and Removal:

1. Remove each temporary facility when need for its service has ended, when it has been replaced by authorized use of permanent facility, or at Substantial Completion.
2. Complete or, if necessary, restore permanent construction that may have been delayed because of interference with temporary facility.
3. Repair damaged work, clean exposed surfaces, and replace construction that cannot be satisfactorily repaired.
4. Materials and facilities that constitute temporary facilities are property of Contractor.
5. Government reserves right to take possession of Project identification signs.
6. Temporary Paving: Repair or replace street paving, curbs, and sidewalks at temporary entrances, as required by authorities having jurisdiction.
7. Substantial Completion:
 - a. Clean and renovate permanent facilities used during construction period.
 - b. Comply with final cleaning requirements in Section 01770.

END OF SECTION 01500

SECTION 01560 - ENVIRONMENTAL PROTECTION

PART 1 GENERAL

1.01 APPLICABLE PUBLICATIONS

- A. Naval Environmental Protection Support Service (NEPSS) Publication

1.02 DEFINITIONS OF CONTAMINANTS

- A. Sediment: Soil and other debris that has been eroded and transported by runoff water.
- B. Solid Waste: Rubbish, debris, garbage, and other discarded soil materials resulting from industrial, commercial and agricultural operations, and from community activities.
- C. Rubbish: A variety of combustible and non-combustible wastes such as paper, boxes, glass, crockery, metal, lumber, cans, and bones.
- D. Debris: Includes combustible and non-combustible wastes such as ashes, waste materials that result from construction or maintenance and repair work, leaves and tree trimmings.
- E. Chemical Wastes: Includes salts, acids, alkalies, herbicides, pesticides, and organic chemicals.
 - 1. Sewage: Wastes characterized as domestic sanitary sewage.
 - 2. Garbage: Refuse and scraps resulting from preparation, cooking, dispensing, and consumption of food.
- F. Oily Waste: Includes petroleum products and bituminous materials.

1.03 SUBMITTALS

- A. Solid Waste Disposal Permit: Submit one (1) copy of State and local permit or license which reflects such agency's approval of the disposal plan as being in compliance with their solid waste disposal regulations.

1.04 ENVIRONMENTAL PROTECTION REQUIREMENTS

- A. Provide and maintain during the life of the contract, environmental protection as defined herein. Provide environmental protective measures as required to control pollution that develops during normal construction practice. Provide also environmental protective measures required to correct conditions that develop during the construction of permanent or temporary environmental features associated with the project. Comply with all Federal, State, and local regulations pertaining to water, air and noise pollution.

PART 2 PRODUCTS

NOT USED

PART 3 EXECUTION

3.01 PROTECTION OF NATURAL RESOURCES

- A. The natural resources within the project boundaries and outside the limits of permanent work performed under this contract shall be preserved in their existing conditions or restored to an equivalent or improved condition upon completion of the work. Confine construction activities to areas defined by the work schedule, drawings, and specifications.
 - 1. Land Resources: Except in areas indicated to be cleared, do not remove, cut, deface, injure, or destroy trees or shrubs without special permission from the Contracting Officer. Do not fasten or attach ropes, cables, or guys to any existing nearby trees for anchorages unless specifically authorized. Where such special emergency use is authorized, the Contractor shall be responsible for any resultant damage.
 - a. Protection: Protect existing trees which are to remain and which may be injured, bruised, defaced, or otherwise damaged by construction operations. Remove displaced rocks from uncleared areas. Protect monuments, markers, and works of art.
 - b. Repair or Restoration: Repair or restore to their original condition, all trees or other landscape features scarred or damaged by the equipment or operations. Obtain approval of the repair or restoration from the Contracting Officer prior to its initiation.
 - c. Temporary Construction: Obliterate all signs of temporary construction facilities such as haul roads, work areas, structures, foundations or temporary structures, stockpiles of excess or waste materials, and all other vestiges of construction. Temporary roads, parking areas, and similar temporary use areas shall be graded in conformance with surrounding areas, tilled and seeded. Include topsoil or nutrient during the seeding operation as necessary to obtain a suitable stand of grass.
 - 2. Water Resources: Perform all work in such a manner that any adverse environmental impact on water resources is reduced to a level acceptable to the Contracting Officer.
 - a. Oily Substances: Take special measures to prevent oily or other hazardous substances from entering the ground, drainage areas, or local bodies of water. Surround all temporary fuel oil, petroleum or liquid chemical storage tanks with a temporary earth berm of sufficient size and strength to contain the contents of the tank in the event of content leakage or spillage.

3.02 EROSION AND SEDIMENT CONTROL MEASURES

- A. Burn Off: Burn off of ground cover is not permitted.
- B. Borrow Pit Areas: Manage and control borrow pit areas to prevent sediment from entering

nearby streams or lakes. Restore areas, including those outside borrow pit, disturbed by borrow and haul operations. Restoration includes grading, replacement of topsoil and establishment of permanent vegetative cover. Uniformly grade side slopes of borrow pit to a slope of thirty (30) degrees or less with the horizontal. Uniformly grade bottom of bottom of borrow pits to provide a flat bottom, and drain by outfall ditches or other suitable means.

- C. Protection of Erodible Soils: All earthwork brought to final grade shall be immediately furnished as indicated or specified. Protect immediately side slopes and back slopes upon completion of rough grading. Plan and conduct all earth work in such a manner as to minimize the duration of exposure of unprotected soils.
- D. Temporary Protection of Erodible Soils: Utilize the following methods to prevent erosion and control sedimentation.
 - 1. Mechanical Retardation and Control of Runoff: Mechanically retard and control the rate of runoff from the construction site. This includes construction of diversion ditches, benches and berms to retard and divert runoff to protected drainage courses.
 - 2. Borrow: Not permitted in areas where suitable environmental controls are not possible.
 - 3. Vegetation and Mulch: Provide temporary protection on all side and back slopes as soon as rough grading is completed and sufficient soil is exposed to require protection to prevent erosion. Such protection shall be by accelerated growth of permanent vegetation, temporary vegetation, mulching or netting. Stabilize slopes by hydroseeding, anchoring mulch in place, covering with anchored netting, sodding, or such combination of these and other methods necessary for effective erosion control.

3.03 CONTROL AND DISPOSAL OF SOLID, CHEMICAL AND SANITARY WASTES

- A. Pick up solid wastes and place in containers which are emptied on a regular schedule. The preparation, cooking, and disposing of food are strictly prohibited on the project site. Conduct handling and disposal of wastes to prevent contamination of the site and other areas. On completion, leave areas clean and natural looking. Obliterate signs of temporary construction and activities incidental to construction of the permanent work in place.
 - 1. Disposal of Garbage, Rubbish, and Debris: Remove garbage, rubbish, and debris from Government property and dispose of it in compliance with Federal, State, and local requirements.
 - 2. Sewage, Odor, and Pest Control: Dispose of sewage through connection to station sanitary sewage system. Where such system is not available, use chemical toilets or comparably effective units and periodically empty wastes into station sanitary sewage systems. Include provisions for pest control and elimination of odors.
 - 3. Chemical Waste: Store chemical waste in corrosion resistant containers labeled to identify the type of waste and date filled. Remove containers from the project site and dispose of chemical waste in accordance with Federal, State, and local regulations, notify the Contracting Officer immediately.
 - a. Petroleum Products: Conduct fueling and lubricating of equipment and motor vehicles in a manner that affords the maximum protection against spills and evaporation. Dispose of lubricants to be discarded and excess oil in accordance with approved procedures meeting Federal, State, and local regulations.

3.04 DUST CONTROL

- A. Keep dust down at all times, including non-working hours, weekends, and holidays. Sprinkle or treat with dust suppressors the soil at the site, haul roads, and other areas disturbed by operations. No dry power brooming is permitted. Instead, use vacuuming, wet mopping, wet sweeping, or wet power brooming. Air blowing is permitted only for cleaning non-particulate debris such as steel reinforcing boards. No unnecessary shaking of bags is permitted where bagged cement, concrete mortar, and plaster is used.

3.05 NOISE

- A. When available, make the maximum use of "low noise emission products" as certified by EPA. No blasting or use of explosives is permitted.

3.06 NOT USED

3.07 CONTAMINATED SOIL

- A. Excavated soil that is contaminated shall be stockpiled at a location selected by the Contracting Officer. Soil shall be separated into two (2) types, contaminated and potentially clean and stockpiled into separate piles. Soil shall be stored on 6 to 20 mil plastic. Lab tests shall be performed to determine if soil is clean or dirty. Soil confirmed to be clean shall be reused as backfill. Soil confirmed to be contaminated shall be secured at its stockpiling location for a period of at least one (1) year, after which time it can be transported to a nearby landfill after proper permits have been obtained.

3.08 HEALTH AND SAFETY PLAN

- A. Removal of underground storage tanks shall be in accordance with OSHA requirements. General Contractor shall submit a Health and Safety Plan to meet OSHA requirements.

3.09 INSTALLATION RECYCLING PROGRAMS

- A. Contractor shall become familiar with and comply with the Installation's recycling program.

END OF SECTION 01560

SECTION 01600 - PRODUCT REQUIREMENTS

PART 1 GENERAL

1.01 SUMMARY

- A. This Section specifies administrative and procedural requirements governing Contractor's selection of products for use in Project where named by specific manufacturer and/or product or described by physical properties without naming manufacturer and/or product.
- B. Related Sections:
 - 1. 01330, Submittal Procedures; for Contractor's Construction Schedule and Schedule of Submittals.
 - 2. 01631, Product Substitutions; for procedures related to substitution requests for specified products, materials, equipment, or construction methods.
- C. Definitions:
 - 1. General:
 - a. Definitions used in this Article are not intended to change meaning of other terms used in Contract Documents, such as, specialties, systems, structure, finishes, accessories, and similar terms.
 - b. Such terms are self-explanatory and have well-recognized meanings in construction industry.
 - 2. Products:
 - a. Items purchased for incorporation in work shall all be new; do not used second-hand or previously-used products.
 - b. The term product includes terms material, equipment, system, and terms of similar intent.
 - c. Named Products: Items identified by manufacturer's product name, including make or model designation, indicated in manufacturer's published product literature, current as of date of Contract Documents.
 - 3. Materials: Products substantially shaped, cut, worked, mixed, finished, refined, or otherwise fabricated, processed, or installed to form part of work.
 - 4. Equipment: Product with operational parts, whether motorized or manually operated, requiring service connections such as wiring or piping.

1.02 SUBMITTALS

- A. Product List Schedule:
 - 1. Prepare Schedule showing products specified in tabular form acceptable to Contracting Officer.
 - 2. Include generic names of products required.
 - 3. Include manufacturer's name and proprietary product names for each item listed.
 - 4. Coordinate Product List Schedule with Contractor's Construction Schedule and

Schedule of Submittals.

5. Form: Prepare Product Listing Schedule with information on each item tabulated under following column headings.
 - a. Related Specification Section number.
 - b. Generic name as used in Contract Documents.
 - c. Proprietary name, model number, and similar designations.
 - d. Manufacturer's name and address.
 - e. Supplier's name and address.
 - f. Installer's name and address.
 - g. Projected delivery date, or time span of delivery period.

B. Submittal:

1. Within 30 days after date of commencement of work, submit 3 copies of initial Product List Schedule.
2. Provide written explanation for omissions of data, and for known variations from Contract requirements.
3. At Contractor's option, initial submittal may be limited to product selections and designations that must be established early in Contract period.

C. Completed Schedule:

1. Within 60 days after commencement of work, submit 3 copies of completed Product List Schedule.
2. Provide written explanation for omissions of data and for known variations from Contract requirements.

D. Contracting Officer's Action:

1. Contracting Officer will respond to Contractor in writing within 2 weeks of receipt of completed Product List Schedule.
2. No response within this time constitutes no objection to listed products or manufacturers, but does not constitute waiver of requirement that products comply with Contract Documents.
3. Contracting Officer's response will include following: List of unacceptable product selections, containing brief explanation of reasons for this action.

1.03 QUALITY ASSURANCE

A. Source Limitations:

1. To fullest extent possible, provide products of same kind, from single source.
2. When specified products are available only from sources that do not or cannot produce quantity adequate to complete Project requirements in timely manner, consult with Contracting Officer for determination of most important product qualities before proceeding.
3. Qualities may include attributes relating to visual appearance, strength, structural, durability, or compatibility.

4. When determination has been made, select products from sources that produce products possessing these qualities, to fullest extent possible.

B. Compatibility of Options:

1. When Contractor is given option of selecting between two or more products for use on Project, product selected shall be compatible with products previously selected, even if previously selected products were also options.
2. Each prime Contractor is responsible for providing products and construction methods compatible with products and construction methods of other prime or separate Contractors.
3. If dispute arises between prime Contractors over concurrently selectable, but incompatible products, Contracting Officer will determine which products shall be retained and which are incompatible and must be replaced.

C. Nameplates:

1. Except for required labels and operating data, do not attach or imprint manufacturer's or producer's nameplates or trademarks on exposed surfaces of products that will be exposed to view in occupied spaces or on exterior.
2. Labels: Locate required product labels and stamps on concealed surface or, where required for observation after installation, on accessible surface that is not conspicuous.
3. Equipment Nameplates:
 - a. Provide permanent nameplate on each item of service-connected or power-operated equipment.
 - b. Locate on easily accessible surface that is inconspicuous in occupied spaces.
 - c. Nameplate shall contain following information and other essential operating data: Name of Product or Manufacturer, Model and Serial Number, Capacity, Speed, Ratings.

1.04 PRODUCT DELIVERY, STORAGE, AND HANDLING

- A. Deliver, store, and handle products in accordance with manufacturer's recommendations, using means and methods to prevent damage, deterioration and loss, including theft.

B. Delivery:

1. Schedule delivery to minimize long-term storage at site and to prevent overcrowding of construction spaces.
2. Coordinate delivery and installation to ensure minimum holding time for items that are flammable, hazardous, easily damaged, or sensitive to deterioration, theft, and other losses.
3. Deliver products to site in manufacturer's original sealed container or other packaging system, complete with labels and instructions for handling, storing, unpacking, protecting, and installing.
4. Inspect products on delivery to ensure compliance with Contract Documents, and to ensure products are undamaged and properly protected.

C. Storage:

1. Store products at site to facilitate inspection and measurement of quantity or counting of units.
2. Store heavy materials away from Project structure in manner that will not endanger supporting construction.
3. Store products subject to damage by elements above ground, under cover in weathertight enclosure, with ventilation adequate to prevent condensation.
4. Maintain temperature and humidity within range required by manufacturer's instructions.

PART 2 PRODUCTS

2.01 PRODUCT SELECTION

A. General Product Requirements:

1. Provide undamaged products complying with Contract Documents and, unless otherwise indicated, unused at time of installation.
2. Provide products complete with all accessories, trim, finish, safety guards, and other devices and details needed for complete installation and for intended use and effect.
3. Standard Products: Where available, provide standard products of types that have been produced and used successfully in similar situations on other projects.

B. Product Selection Procedures:

1. Product selection is governed by Contract Documents and governing regulations, not by previous Project experience.
2. Procedures governing product selection include following.
3. Proprietary Specification Requirements:
 - a. Where only single product or manufacturer is named, provide product indicated.
 - b. No substitutions will be permitted.
4. Semiproprietary Specification Requirements:
 - a. Where two or more products or manufacturers are named, provide one of products indicated.
 - b. Where products or manufacturers are specified by name, accompanied by term "or equal," or "or approved equal," comply with Section 01631 concerning substitutions to obtain approval for use of unnamed product; substitutions will be processed as Change Order Requests.
5. Nonproprietary Specifications:
 - a. When Specifications list products or manufacturers that are available and may be incorporated in work, but do not restrict Contractor to use of these products only, Contractor may propose any available product complying with Contract requirements.
 - b. Comply with Contract Document provisions concerning "substitutions" to obtain approval for use of unnamed product.

6. Descriptive Specification Requirements: Where Specifications describe product or assembly listing exact characteristics required, with or without use of brand or trade name, provide product or assembly providing characteristics and otherwise complies with Contract requirements.
7. Performance Specification Requirements:
 - a. Where Specifications require compliance with performance requirements, provide products complying with these requirements, and are recommended by manufacturer for application indicated.
 - b. General overall performance of product is implied where product is specified for specific application.
 - c. Manufacturer's recommendations may be contained in published product literature, or by manufacturer's certification of performance.
8. Compliance with Standards, Codes and Regulations: Where Specifications only require compliance with imposed code, standard, or regulation, select product complying with standards, codes, or regulations specified.
9. Visual Matching:
 - a. Where Specifications require matching established sample, Contracting Officer's decision will be final on whether proposed product matches satisfactorily.
 - b. Where no product available within specified category matches satisfactorily and also complies with other specified requirements, comply with provisions of Contract Documents concerning "substitutions" for selection of matching product in another product category, or for noncompliance with specified requirements.
10. Visual Selection:
 - a. Where specified product requirements include phrase " . . . as selected from manufacturer's standard colors, patterns, textures . . . " or similar phrase, select product and manufacturer complying with other specified requirements.
 - b. Contracting Officer will select color, pattern, and texture from product line selected.

PART 3 EXECUTION

3.01 INSTALLATION OF PRODUCTS

- A. Comply with manufacturer's instructions and recommendations for installation of products in applications indicated.
- B. Anchor each product securely in space, accurately located, and aligned with other work.
- C. Clean exposed surfaces and protect as necessary to ensure freedom from damage and deterioration at time of Substantial Completion.

END OF SECTION 01600

SECTION 01732 - SELECTIVE DEMOLITION

PART 1 - GENERAL

1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and other Division 1 Specification Sections, apply to this Section.

1.2 SUMMARY

- A. This Section includes the following:
 - 1. Demolition and removal of selected portions of a building or structure.
 - 2. Repair procedures for selective demolition operations.
- B. Related Sections include the following:
 - 1. Division 15 Sections for demolishing, cutting, patching, or relocating mechanical items.
 - 2. Division 16 Sections for demolishing, cutting, patching, or relocating electrical items.

1.3 DEFINITIONS

- A. Remove: Detach items from existing construction and legally dispose of them off-site, unless indicated to be removed and salvaged or removed and reinstalled.
- B. Remove and Salvage: Detach items from existing construction and deliver them to Contracting Officer .
- C. Remove and Reinstall: Detach items from existing construction, prepare them for reuse, and reinstall them where indicated.
- D. Existing to Remain: Existing items of construction that are not to be removed and that are not otherwise indicated to be removed, removed and salvaged, or removed and reinstalled.

1.4 MATERIALS OWNERSHIP

- A. Except for items or materials indicated to be reused, salvaged, reinstalled, or otherwise indicated to remain Owner's property, demolished materials shall become Contractor's property and shall be removed from Project site.
- B. Historic items, relics, and similar objects including, but not limited to, cornerstones and their contents, commemorative plaques and tablets, antiques, military equipment, weapon related, and other items of interest or value to Owner that may be encountered during selective demolition remain Owner's property. Carefully remove and salvage each item or object in a manner to prevent damage and deliver promptly to Contracting Officer.

1. Coordinate with Owner's designated Contracting Officer, who will establish special procedures for removal and salvage.

1.5 SUBMITTALS

- A. Qualification Data: For firms and persons specified in "Quality Assurance" Article to demonstrate their capabilities and experience. Include lists of completed projects with project names and addresses, names and addresses of architects and owners, and other information specified.
- B. Proposed Dust-Control and Noise-Control Measures: Submit statement or drawing that indicates the measures proposed for use, proposed locations, and proposed time frame for their operation. Identify options if proposed measures are later determined to be inadequate.
- C. Schedule of Selective Demolition Activities: Indicate the following:
 1. Detailed sequence of selective demolition and removal work, with starting and ending dates for each activity. Ensure Owner's and Contracting Officer's on-site operations are uninterrupted.
 2. Interruption of utility services.
 3. Coordination for shutoff, capping, and continuation of utility services.
 4. Use of stairs.
 5. Locations of temporary partitions and means of egress.
 6. Coordination of Owner's continuing occupancy of portions of existing building and of Owner's partial occupancy of completed Work.
- D. Inventory: After selective demolition is complete, submit a list of items that have been removed and salvaged.
- E. Predemolition Photographs or Videotape: Show existing conditions of adjoining construction and site improvements, including finish surfaces, that might be misconstrued as damage caused by selective demolition operations. Submit before Work begins.
- F. Landfill Records: Indicate receipt and acceptance of hazardous wastes by a landfill facility licensed to accept hazardous wastes.

1.6 QUALITY ASSURANCE

- A. Demolition Firm Qualifications: An experienced firm that has specialized in demolition work similar in material and extent to that indicated for this Project.
- B. Professional Engineer Qualifications: Comply with Division 1 Section "Quality Requirements."
- C. Regulatory Requirements: Comply with governing EPA notification regulations before beginning selective demolition. Comply with hauling and disposal regulations of authorities having jurisdiction.
- D. Standards: Comply with ANSI A10.6 and NFPA 241.

1.7 PROJECT CONDITIONS

- A. Owner will occupy portions of building immediately adjacent to selective demolition area. Conduct selective demolition so Owner's operations will not be disrupted. Provide not less than 72 hours' notice to Contracting Officer of activities that will affect Owner's operations.
- B. Maintain access to existing walkways, corridors, and other adjacent occupied or used facilities.
 - 1. Do not close or obstruct walkways, corridors, or other occupied or used facilities without written permission from authorities having jurisdiction.
- C. Owner assumes no responsibility for condition of areas to be selectively demolished.
 - 1. Conditions existing at time of inspection for bidding purpose will be maintained by Owner as far as practical.
 - 2. Before selective demolition, Owner will remove the following items:
 - a. Furnishings and operations equipment in areas of work.
- D. Hazardous Materials: Hazardous materials are present in building to be selectively demolished. A report on the presence of hazardous materials is on file for review and use. Examine report to become aware of locations where hazardous materials are present.
 - 1. Hazardous material remediation is specified elsewhere in the Contract Documents.
 - 2. Do not disturb hazardous materials or items suspected of containing hazardous materials except under procedures specified elsewhere in the Contract Documents.
- E. Storage or sale of removed items or materials on-site will not be permitted.
- F. Utility Service: Maintain existing utilities indicated to remain in service and protect them against damage during selective demolition operations.
 - 1. Maintain fire-protection facilities in service during selective demolition operations.

1.8 WARRANTY

- A. Existing Warranties: Remove, replace, patch, and repair materials and surfaces cut or damaged during selective demolition, by methods and with materials so as not to void existing warranties.

PART 2 - PRODUCTS

2.1 REPAIR MATERIALS

- A. Use repair materials identical to existing materials.
 - 1. If identical materials are unavailable or cannot be used for exposed surfaces, use materials that visually match existing adjacent surfaces to the fullest extent possible.
 - 2. Use materials whose installed performance equals or surpasses that of existing materials.

- B. Comply with material and installation requirements specified in individual Specification Sections.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Verify that utilities have been disconnected and capped.
- B. Survey existing conditions and correlate with requirements indicated to determine extent of selective demolition required.
- C. Inventory and record the condition of items to be removed and reinstalled and items to be removed and salvaged.
- D. When unanticipated mechanical, electrical, or structural elements that conflict with intended function or design are encountered, investigate and measure the nature and extent of conflict. Promptly submit a written report to Contracting Officer.
- E. Engage a professional engineer to survey condition of building to determine whether removing any element might result in structural deficiency or unplanned collapse of any portion of structure or adjacent structures during selective demolition operations.
- F. Perform surveys as the Work progresses to detect hazards resulting from selective demolition activities.

3.2 UTILITY SERVICES

- A. Existing Utilities: Maintain services indicated to remain and protect them against damage during selective demolition operations.
- B. Do not interrupt existing utilities serving occupied or operating facilities unless authorized in writing by Contracting Officer and authorities having jurisdiction. Provide temporary services during interruptions to existing utilities, as acceptable to Contracting Officer and to authorities having jurisdiction.
 - 1. Provide at least 72 hours' notice to Contracting Officer if shutdown of service is required during changeover.
- C. Utility Requirements: Locate, identify, disconnect, and seal or cap off indicated utilities serving areas to be selectively demolished.
 - 1. Contracting Officer Building manager will arrange to shut off indicated utilities when requested by Contractor.
 - 2. Arrange to shut off indicated utilities with utility companies.

3. If utility services are required to be removed, relocated, or abandoned, before proceeding with selective demolition provide temporary utilities that bypass area of selective demolition and that maintain continuity of service to other parts of building.
 4. Cut off pipe or conduit in walls or partitions to be removed. Cap, valve, or plug and seal remaining portion of pipe or conduit after bypassing.
- D. Utility Requirements: Refer to Division 15 and 16 Sections for shutting off, disconnecting, removing, and sealing or capping utilities. Do not start selective demolition work until utility disconnecting and sealing have been completed and verified in writing.

3.3 PREPARATION

- A. Dangerous Materials: Drain, purge, or otherwise remove, collect, and dispose of chemicals, gases, explosives, acids, flammables, or other dangerous materials before proceeding with selective demolition operations.
- B. Site Access and Temporary Controls: Conduct selective demolition and debris-removal operations to ensure minimum interference with roads, streets, walks, walkways, and other adjacent occupied and used facilities.
1. Do not close or obstruct streets, walks, walkways, or other adjacent occupied or used facilities without permission from Contracting Officer and authorities having jurisdiction. Provide alternate routes around closed or obstructed traffic ways if required by governing regulations.
 2. Erect temporary protection, such as walks, fences, railings, canopies, and covered passageways, where required by authorities having jurisdiction.
 3. Protect existing site improvements, appurtenances, and landscaping to remain.
- C. Temporary Facilities: Provide temporary barricades and other protection required to prevent injury to people and damage to adjacent buildings and facilities to remain.
1. Provide protection to ensure safe passage of people around selective demolition area and to and from occupied portions of building.
 2. Provide temporary weather protection, during interval between selective demolition of existing construction on exterior surfaces and new construction, to prevent water leakage and damage to structure and interior areas.
 3. Protect walls, ceilings, floors, and other existing finish work that are to remain or that are exposed during selective demolition operations.
 4. Cover and protect furniture, furnishings, and equipment that have not been removed.
- D. Temporary Enclosures: Provide temporary enclosures for protection of existing building and construction, in progress and completed, from exposure, foul weather, other construction operations, and similar activities. Provide temporary weathertight enclosure for building exterior.
1. Where heating or cooling is needed and permanent enclosure is not complete, provide insulated temporary enclosures. Coordinate enclosure with ventilating and material drying or curing requirements to avoid dangerous conditions and effects.

- E. Temporary Partitions: Erect and maintain dustproof partitions and temporary enclosures to limit dust and dirt migration and to separate areas from fumes and noise.
- F. Temporary Shoring: Provide and maintain interior and exterior shoring, bracing, or structural support to preserve stability and prevent movement, settlement, or collapse of construction to remain, and to prevent unexpected or uncontrolled movement or collapse of construction being demolished.
 - 1. Strengthen or add new supports when required during progress of selective demolition.

3.4 POLLUTION CONTROLS

- A. Dust Control: Use water mist, temporary enclosures, and other suitable methods to limit spread of dust and dirt. Comply with governing environmental-protection regulations.
 - 1. Do not use water when it may damage existing construction or create hazardous or objectionable conditions, such as ice, flooding, and pollution.
 - 2. Wet mop floors to eliminate trackable dirt and wipe down walls and doors of demolition enclosure. Vacuum carpeted areas.
- B. Disposal: Remove and transport debris in a manner that will prevent spillage on adjacent surfaces and areas.
 - 1. Remove debris from elevated portions of building by chute, hoist, or other device that will convey debris to grade level in a controlled descent.
- C. Cleaning: Clean adjacent structures and improvements of dust, dirt, and debris caused by selective demolition operations. Return adjacent areas to condition existing before selective demolition operations began.

3.5 SELECTIVE DEMOLITION

- A. General: Demolish and remove existing construction only to the extent required by new construction and as indicated. Use methods required to complete the Work within limitations of governing regulations and as follows:
 - 1. Proceed with selective demolition systematically, from higher to lower level. Complete selective demolition operations above each floor or tier before disturbing supporting members on the next lower level.
 - 2. Neatly cut openings and holes plumb, square, and true to dimensions required. Use cutting methods least likely to damage construction to remain or adjoining construction. Use hand tools or small power tools designed for sawing or grinding, not hammering and chopping, to minimize disturbance of adjacent surfaces. Temporarily cover openings to remain.
 - 3. Cut or drill from the exposed or finished side into concealed surfaces to avoid marring existing finished surfaces.
 - 4. Do not use cutting torches until work area is cleared of flammable materials. At concealed spaces, such as duct and pipe interiors, verify condition and contents of hidden

- space before starting flame-cutting operations. Maintain fire watch and portable fire-suppression devices during flame-cutting operations.
 5. Maintain adequate ventilation when using cutting torches.
 6. Remove decayed, vermin-infested, or otherwise dangerous or unsuitable materials and promptly dispose of off-site.
 7. Remove structural framing members and lower to ground by method suitable to avoid free fall and to prevent ground impact or dust generation.
 8. Locate selective demolition equipment and remove debris and materials so as not to impose excessive loads on supporting walls, floors, or framing.
 9. Dispose of demolished items and materials promptly.
 10. Return elements of construction and surfaces that are to remain to condition existing before selective demolition operations began.
- B. Existing Facilities: Comply with building manager's requirements for using and protecting stairs, walkways, loading docks, building entries, and other building facilities during selective demolition operations.
- C. Removed and Salvaged Items: Comply with the following:
1. Clean salvaged items.
 2. Pack or crate items after cleaning. Identify contents of containers.
 3. Store items in a secure area until delivery to Contracting Officer.
 4. Transport items to Owner's storage area on-site designated by Contracting Officer.
 5. Protect items from damage during transport and storage.
- D. Removed and Reinstalled Items: Comply with the following:
1. Clean and repair items to functional condition adequate for intended reuse. Paint equipment to match new equipment.
 2. Pack or crate items after cleaning and repairing. Identify contents of containers.
 3. Protect items from damage during transport and storage.
 4. Reinstall items in locations indicated. Comply with installation requirements for new materials and equipment. Provide connections, supports, and miscellaneous materials necessary to make item functional for use indicated.
- E. Existing Items to Remain: Protect construction indicated to remain against damage and soiling during selective demolition. When permitted by Contracting Officer, items may be removed to a suitable, protected storage location during selective demolition and cleaned and reinstalled in their original locations after selective demolition operations are complete.
- F. Select paragraph above or below. Below will provide neater openings with less risk of damage to remaining concrete, but may cost more.
- G. Concrete: Demolish in sections. Cut concrete full depth at junctures with construction to remain and at regular intervals, using power-driven saw, then remove concrete between saw cuts.

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H. Concrete Slabs-on-Grade: Saw-cut perimeter of area to be demolished, then break up and remove.

I. Air-Conditioning Equipment: Remove equipment without releasing refrigerants.

3.6 PATCHING AND REPAIRS

A. General: Promptly repair damage to adjacent construction caused by selective demolition operations.

3.7 DISPOSAL OF DEMOLISHED MATERIALS

A. General: Promptly dispose of demolished materials. Do not allow demolished materials to accumulate on-site.

B. Burning: Do not burn demolished materials.

C. Disposal: Transport demolished materials off Owner's property and legally dispose of them.

END OF SECTION 01732

SECTION 01770 - CLOSEOUT PROCEDURES

PART 1 GENERAL

1.01 SUMMARY

- A. This Section specifies administrative and procedural requirements for Project Closeout including, but not limited to:
 - 1. Inspection procedures.
 - 2. Project Record Document submittal.
 - 3. Operating and Maintenance Manual submittal.
 - 4. Submittal of Warranties.
 - 5. Final cleaning.
- B. Closeout requirements for specific construction activities are included in appropriate Sections in Divisions 2 through 16.

1.02 SUBSTANTIAL COMPLETION

- A. Preliminary Procedures: Before requesting inspection for certification of Substantial Completion, complete following.
 - 1. List exceptions in request.
 - 2. In Application for Payment that coincides with, or first follows, date Substantial Completion is claimed, show 100 percent Completion for portion of work claimed as Substantially Complete.
 - 3. Include supporting documentation for Completion as indicated in these Contract Documents and statement showing accounting of changes to Contract Sum.
 - 4. If 100 percent Completion cannot be shown, include list of incomplete items, value of incomplete construction, and reasons work is not complete.
 - 5. Advise Government of pending insurance change-over requirements.
 - 6. Submit specific warranties, workmanship bonds, release of liens from material suppliers or subcontractors as work progresses, maintenance agreements, final certifications, and similar documents.
 - 7. Obtain and submit releases enabling Government unrestricted use of work and access to services and utilities; include occupancy permits, operating certificates, and similar releases.
 - 8. Submit Record Drawings, Maintenance Manuals, final project photographs, Damage or Settlement Survey, Property Survey, and similar final Record information.
 - 9. Deliver tools, spare parts, extra stock, and similar items.
 - 10. Make final change-over of permanent locks and transmit keys to Government.
 - 11. Advise Government's personnel of change-over in security provisions.
 - 12. Complete start-up testing of systems, and instruction of Government's operating and maintenance personnel.
 - 13. Discontinue or change-over and remove temporary facilities from site, along with construction tools, mockups, and similar elements.

14. Complete final clean up requirements, including touch-up painting.
15. Touch-up and otherwise repair and restore marred exposed finishes.

B. Inspection Procedures:

1. On receipt of request for inspection, Contracting Officer will either proceed with inspection or advise Contractor of unfulfilled requirements.
2. The Contracting Officer will prepare Certificate of Substantial Completion following inspection, or advise Contractor of construction that must be completed or corrected before Certificate will be issued.
3. The Contracting Officer will repeat inspection when requested and assured that work has been Substantially Completed.
4. Results of completed inspection will form basis of requirements for Final Acceptance.

1.03 FINAL ACCEPTANCE

A. Preliminary Procedures: Before requesting final inspection for certification of Final Acceptance and Final Payment, complete following.

1. List exceptions in request.
2. Submit Final Payment Request with final releases, including all releases of liens from material suppliers and subcontractors for all placed work, and supporting documentation not previously submitted and accepted.
3. Include certificates of insurance for products and completed operations where required.
4. Submit updated final statement, accounting for final additional changes to Contract Sum.
5. Submit certified copy of Contracting Officer's final inspection list of items to be completed or corrected, stating that each item has been completed or otherwise resolved for Acceptance and list has been endorsed and dated by Contracting Officer.
6. Submit final meter readings for utilities, measured record of stored fuel, and similar data as of date of Substantial Completion, or when Government took possession of and responsibility for corresponding elements of work.
7. Submit consent of surety to Final Payment.
8. Submit evidence of final, continuing insurance coverage complying with insurance requirements.

B. Reinspection Procedure:

1. The Contracting Officer will reinspect work on receipt of notice that work, including inspection list items from earlier inspections, has been completed, except items whose completion has been delayed because of circumstances acceptable to Contracting Officer.
2. On completion of reinspection, Contracting Officer will prepare Certificate of Final Acceptance, or advise Contractor of work that is incomplete or of obligations that have not been fulfilled but are required for Final Acceptance.
3. If necessary, reinspection will be repeated.

1.04 RECORD DOCUMENT SUBMITTALS

A. General:

1. Do not use Record Documents for construction purposes; protect from deterioration and loss in secure, fire-resistive location.
2. Provide access to Record Documents for Contracting Officer's reference during normal working hours.
3. Submit all Record Documents on both paper and electronic files with electronic files submitted on Project-Labeled CD, with Drawings in AutoCad 2000 formatted for white background with layer colors appropriate for white background and text in Microsoft Word 97 format, Adobe PDF format, or scanned TIFF format, as suited to submittal and requirements of Section 01300.

B. Record Drawings:

1. Maintain clean, undamaged set of blue or black line white-prints of Contract Drawings and Shop Drawings.
2. Mark set to show actual installation where installation varies substantially from work as originally shown.
3. Mark whichever drawing is most capable of showing conditions fully and accurately.
4. Where shop drawings are used, record cross-reference at corresponding location on Contract Drawings.
5. Give particular attention to concealed elements that would be difficult to measure and record at later date.
6. Mark Record Sets with red erasable pencil; use other colors to distinguish between variations in separate categories of work.
7. Mark new information that is important to Government, but was not shown on Contract Drawings or Shop Drawings.
8. Note related Change Order numbers where applicable.
9. Organize Record Drawing Sheets into manageable sets, bind with durable paper cover sheets, and print suitable titles, dates, and other identification on cover of each set.

C. Record Specifications:

1. Maintain one complete copy of Project Manual, including addenda, and one copy of other written Construction Documents such as Change Orders and modifications issued in printed form during construction.
2. Mark these documents to show substantial variations in actual work performed in comparison with text of Specifications and modifications.
3. Give particular attention to substitutions, selection of options, and similar information on elements that are concealed or cannot otherwise be readily discerned later by direct observation.
4. Note related Record Drawing information and Product Data.
5. On completion of work, submit Record Specifications to Contracting Officer for Government's records.

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D. Record Product Data:

1. Maintain one copy of each product data submittal.

2. Mark these documents to show significant variations in actual work performed in comparison with information submitted.
3. Include variations in products delivered to site and from manufacturer's installation instructions and recommendations.
4. Give particular attention to concealed products and portions of work that cannot otherwise be readily discerned later by direct observation.
5. Note related Change Orders and mark-up of Record Drawings and Specifications.
6. On completion of mark-up, submit complete set of Record Product Data to Contracting Officer for Government's records.

E. Record Sample Submittal:

1. Immediately before date or dates of Substantial Completion, Contractor will meet at site with Contracting Officer and Government's personnel to determine which of submitted Samples that have been maintained during progress of work, are to be transmitted to Government for record purposes.
2. Comply with delivery to Government's sample storage area.

F. Miscellaneous Record Submittals:

1. Refer to other Specification Sections for requirements of miscellaneous record-keeping and submittals in connection with actual performance of work.
2. Immediately before date or dates of Substantial Completion, complete miscellaneous records and place in good order, properly identified and bound or filed, ready for continued use and reference.
3. Submit to Contracting Officer for Government's records.

G. Maintenance Manuals:

1. Organize operating and maintenance data into suitable sets of manageable size.
2. Bind properly indexed data in individual heavy-duty 2 in., 3-ring vinyl-covered binders, with pocket folders for folded sheet information.
3. Mark appropriate identification on front and spine of each binder.
4. Include following type of information:
 - a. Emergency instructions.
 - b. Spare parts list.
 - c. Copies of warranties.
 - d. Wiring diagrams.
 - e. Recommended turn-around cycles.
 - f. Inspection procedures.
 - g. Shop drawings and product data.
 - h. Fixture lamping schedule.

PART 2 PRODUCTS

NOT USED

PART 3 EXECUTION

3.01 CLOSEOUT PROCEDURES

A. Operating and Maintenance Instructions:

1. Arrange for each installer of equipment that requires regular maintenance to meet with Government's personnel to provide instruction in proper operation and maintenance.
2. If installers are not experienced in procedures, provide instruction by manufacturer's representatives; complete with step-by-step operating manuals written for each operating sequence or combination of sequences.
3. Include detailed review of following items:
 - a. Maintenance manuals, complete with step-by-step instructions for maintenance and troubleshooting.
 - b. Record documents.
 - c. Spare parts and materials.
 - d. Tools.
 - e. Lubricants.
 - f. Fuels.
 - g. Identification systems.
 - h. Control sequences.
 - i. Hazards.
 - j. Cleaning.
 - k. Warranties and bonds.
 - l. Maintenance agreements and similar continuing commitments.
4. As part of instruction for operating equipment, demonstrate following procedures:
 - a. Startup.
 - b. Shutdown.
 - c. Emergency operations.
 - d. Noise and vibration adjustments.
 - e. Safety procedures.
 - f. Economy and efficiency adjustments.
 - g. Effective energy utilization.

3.02 FINAL CLEANING

- #### A. General:
- General Cleaning during construction is required by General Conditions and is included in Section 01500.
- #### B. Cleaning:
1. Employ experienced workers or professional cleaners for final cleaning.

2. Clean each surface or unit to condition expected in normal, commercial building cleaning and maintenance program.
 3. Comply with manufacturer's instructions.
 4. Complete following cleaning operations before requesting inspection for Certificate of Substantial Completion.
 - a. Remove labels that are not permanent labels.
 - b. Clean transparent materials, including mirrors and glass in doors and windows.
 - c. Remove glazing compound and other substances that are noticeable vision-obscuring materials.
 - d. Replace chipped or broken glass and other damaged transparent materials.
 - e. Clean exposed exterior and interior hard-surfaced finishes to dust-free condition, free of stains, films, and similar foreign substances.
 - f. Restore reflective surfaces to their original reflective condition.
 - g. Leave concrete floors broom clean.
 - h. Vacuum carpeted surfaces.
 - i. Wipe surfaces of mechanical and electrical equipment.
 - j. Clean plumbing fixtures to sanitary condition.
 - k. Clean light fixtures and lamps.
 - l. Clean site, including landscape development areas, of rubbish, litter, and other foreign substances.
 - m. Sweep paved areas broom clean; remove stains, spills, and other foreign deposits.
- C. Removal of Protection: Remove temporary protection and facilities installed for protection of work during construction.
- D. Compliance:
1. Comply with regulations of authorities having jurisdiction and safety standards for cleaning.
 2. Do not burn waste materials.
 3. Do not bury debris or excess materials on Government's property.
 4. Do not discharge volatile, harmful, or dangerous materials into drainage systems.
 5. Remove waste materials from site and dispose of in lawful manner.
 6. Where extra materials of value remaining after completion of associated work have become Government's property, arrange for disposition of these materials as directed.

END OF SECTION 01770

SECTION 01800 - GENERAL STANDARDS

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. General standards.
- B. Related Sections:
 - 1. 01600, Product Requirements; for procedures related to material and equipment.

1.02 GENERAL STANDARDS APPLICABLE TO ALL SPECIFICATION SECTIONS

- A. These provisions, standards, and tolerances shall apply to all work under this contract. Where stricter standards and tolerances are specified, they shall take precedence over these standards and tolerances.
 - 1. Some of the requirements specified in the Section are performing requirements. The Contracting Officer will cooperate in deciding how best to make the work conform to these performance requirements, and he will issue prompt interpretations and explanations of these requirements when requested to do so.
- B. Build and install parts of the work level, square, plumb, and in correct position impair its function or that of the project.
 - 1. No part shall be out of plumb, level, square or correct position so much as to impair its function or that of the project.
 - 2. No part shall be out of plumb, level, square, or correct position so much as to impair the aesthetic effect of the part of the project as judged by the Contracting Officer.
 - 3. The following tolerances shall apply to plane surfaces unless stricter tolerances are specified. These tolerances shall not apply to work for which, in the Contracting Officer's interpretation, they are clearly inappropriate.
 - a. No point in the plane surface shall be out of correct position by more than 1/8 in.
 - b. No tangent to the plane surface shall vary from the vertical horizontal, or other indicated plane by more than 1/2 in. in 12 ft.
- C. Make joints tight and neat. If such is impossible, apply moldings, sealant, or other closure as directed by Contracting Officer.
- D. Under potentially damp conditions, provide galvanic insulation between different metals which are not adjacent on the galvanic scale.
- E. All fasteners used by all trades on the exterior of the building and where dampness and corrosion resistant.

1. Fasteners used for exterior wood rim, whether set and puttied or not, shall be stainless steel or not, shall be stainless steel or aluminum.
 2. Fasteners for other carpentry on the exterior or in potentially damp locations shall be stainless steel, aluminum, or hot dip galvanized steel.
 3. Fasteners for copper and brass in all locations and under all conditions shall be copper or brass.
 4. Fasteners for stainless steel shall be stainless steel.
 5. Fasteners for aluminum.
 6. Fasteners for ferrous metals shall be galvanized or stainless steel.
 7. Fasteners for other materials on the exterior of the building and where dampness and corrosion can reasonably be anticipated shall be one of the types specified above.
 8. If corrosion resistant fasteners are not available, notify Contracting Officer. Contracting Officer will direct alternative protection.
- F. Apply protective finish to parts of the work before concealing parts. For example, paint door tops and bottom before hanging doors, and paint corrodible mounting plates before installing parts over them.
1. Paint aluminum embedded in masonry with bituminous paint.
 2. Coat concealed wood exposed in masonry with heavy coat of water repellent toxic fungicide.
 3. Paint other concealed materials with same primer and finish specified for exposed surfaces. If concealed materials are fully covered, primer alone is sufficient.
 4. Concealed parts which are already corrosion protected need not be painted unless specified otherwise.
- G. Manufacturers, subcontractors, and workmen shall be experienced and skillful in performing the work assigned to them.
- H. Verify critical dimensions in the field before fabricating items which must fit adjoining construction.
- I. Where accessories are required in order to install parts of the work in usable form, provide such accessories.
- J. All paint used on all products shall conform to ANSI A66.1-1964, "Specifications to Minimize Hazards to Children from Residual Surface Coating Materials".
- K. Follow manufacturer's instructions for assembling, installing and adjusting products. Where manufacturer's instructions conflict with Contract Documents, request instructions from Contracting Officer.
- L. Adjust and operate all items of equipment, leaving them fully ready for use.
- M. All guarantees, warranties, and service maintenance agreements shall commence on the date of substantial completion of the work or the item being guaranteed, whichever is later, so that Government receives full use of the item for the guarantee period.

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- N. All materials and equipment shall comply with the Occupational Safety and Health Act as amended.

1.03 GENERAL WORK TO BE PERFORMED AS PART OF GENERAL CONSTRUCTION

- A. Seal cracks and openings so as to make exterior skin of building tight to the weather. If methods of doing so are not specified, notify Contracting Officer and proceed as directed by the Contracting Officer.
- B. Provide adequate blocking, bracing, nailers, and fastenings to install parts of the work securely. Installed parts shall be able to withstand 2-1/2 times the maximum anticipated load as estimated by Contracting Officer. Block, bracing, nailers, and fastenings shall not be subject to deterioration or weakening as the result of normal environmental conditions or aging.
- C. Perform cutting and patching required for all trades. Use workmen skilled in such work. Patch holes where ducts, conduit, pipes, and other items pass through existing construction. Patch holes where ducts, conduits, pipes, and other items are removed from existing construction.
- D. Furnish access doors and panels in addition to those specified in other Sections as required for access to equipment requiring adjustment, inspection, maintenance, or other access. Access panels shall comply with requirements of Section 08311. If installation of access doors, plates and panels is not specified elsewhere, install them. For estimating purposes, assume that no more than 8 access doors are required. If number is greater, notify Contracting Officer. Adjustments, if ordered, will be made by Change Order.
- E. Check drawings for requirements for bases, pads, and other supporting structures. Provide such supporting structures.
- F. As part of the one year warranty specified in the General Conditions, repair cracks and other faults which occur as a result of settlement and shrinkage during the first year after substantial completion. This does not include faults which are due to abuse of the project or abnormal faults which result from inadequate design.

1.04 REFERENCE STANDARDS

- A. Unless date is listed, reference to standard specifications shall mean latest edition of such specifications published at date of bid documents.
- B. Reference to technical society or organization is made in the Project Manual according to the following abbreviations:

| | |
|------|---|
| AIA | American Institute of Architects |
| ACI | American Concrete Institute |
| AIEE | American Institute of Electrical Engineers |
| AISC | American Iron and Steel Institute |
| ANSI | American National Standards Institute (Obsolete designations are ASA and USASI) |
| APA | American Plywood Association (Obsolete designation is DFPA) |

Fire Suppression System, Building No. 1
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| | |
|----------|---|
| ASME | American Society of Mechanical Engineers |
| ASTM | American Society of Testing and Materials |
| AWI | Architectural Woodwork Institute |
| AWS | American Welding Society |
| FS | Federal Specification |
| NBS | National Electrical Code |
| NEC | National Electrical Code |
| SIGMA | Sealed Insulating Glass Manufacturers Association |
| SSPC | Steel Structures Painting Council |
| UL | Underwriters Laboratories, Inc. |
| Form 811 | Connecticut State Highway Department Standard Specification for Roads, Bridges, and Incidental Construction |

1.05 COORDINATION

- A. This section shall not be interpreted to relieve Contractors of his sole responsibility of supervision and coordination of all construction procedures as provided herein and in General and Special Conditions.
- B. Contractor shall be responsible for supervising and directing the Work, using his best skill and attention. He shall be solely responsible for all construction means, methods, techniques, sequences and procedures, and for coordinating all portions of Work under Contract.
- C. Contractor shall be responsible for acts and omissions of his employees, subcontractors, and their agents and employees.
- D. Contractor shall not be relieved from his obligation to perform Work complying with Contract Documents, either by the activities of the Contracting Officer in administration of Contract or by inspections, tests, or approvals required to substantiate Contract compliance.
- E. Provisions of this section are considered minimal for orderly and expeditious prosecution of Work.

END OF SECTION 01800

SECTION 02050 – SITE DEMOLITION AND REMOVAL

PART 1 - GENERAL

1.1 WORK INCLUDED

- A. Submit proposed salvage, demolition, and removal procedures to the Engineer for approval before work is started.
- B. The work includes demolition or removal of all pavements, slabs on grade, site utilities and all other construction outside of building limits indicated or specified. All materials resulting from demolition work, except as indicated or specified otherwise, shall become the property of the Contractor and shall be removed from the Project site. Remove rubbish and debris from the site daily, unless otherwise directed; do not allow accumulations inside or outside the area. Store materials which cannot be removed daily in areas specified by the Engineer.
- C. Take appropriate action to prevent any spread of dust nuisance in the surrounding area. Do not use methods which may result in hazardous or objectionable conditions, such as loose debris on airfield slab. Comply with all dust regulations imposed by local air pollution agencies.
- D. Protect existing work that is to remain in place. Repair items damaged during performance of the work or replace with new. The Contractor must use all methods possible to eliminate all loose demolition materials from remaining on the airfield. Loose debris can be sucked into jet engines.

1.2 SUBMITTALS

- A. Submit for approval complete details of methods, equipment, and materials proposed to be used, an overall description of the proposed sequence of demolition, and an anticipated time schedule.

PART 2 - PRODUCTS

Not Used

PART 3 - EXECUTION

3.1 GENERAL

- A. The Contractor shall use caution not to damage any other portion of the pavements, slabs or structures that are to remain in place during removal operations. All damage caused by the Contractor shall be repaired by the Contractor using procedures approved or directed by the Engineer at no additional cost to the Owner.

- B. Demolition or removal of materials beyond the designated limits is to be repaired or replaced to the Owner's satisfaction, at the Contractor's own expense.

3.2 REMOVAL AND REPLACEMENT OF FULL CONCRETE PAVEMENT SLABS

- A. Unless there are keys or dowels present, all edges of the slab shall be sawcut full depth.
- B. If keys, dowels, or tie bars are present along any edges, these edges shall be sawed full depth 150 mm (6 inches) from the edge if only keys are present, or just beyond the end of dowels or tie bars if they are present. Joints shall then be carefully sawed on the joint line to within 25 mm 1 inch of the depth of the dowel or key.
- C. The main slab shall be further divided by sawing full depth, at appropriate locations, and each piece lifted out and removed.
- D. The narrow strips along keyed or doweled edges shall be carefully broken up and removed.
- E. Care shall be taken to prevent damage to the dowels, tie bars, or keys or to concrete to remain in place. Protruding portions of dowels shall be painted and lightly oiled.
- F. The joint face below keys or dowels shall be suitably trimmed so that there is no abrupt offset.
- G. If underbreak occurs at any point along any edge, the area shall be hand-filled with concrete, producing an even joint face from top to bottom, before replacing the removed slab. If underbreak over 100 mm (4 inches) deep occurs, the entire slab containing the underbreak shall be removed and replaced.
- H. Where there are no dowels, tie bars, or keys on an edge, or where they have been damaged, dowels of the size and spacing as specified for other joints in similar pavement shall be installed by epoxy grouting them into holes drilled into the existing concrete.
- I. Original damaged dowels or tie bars shall be cut off flush with the joint face and replaced with drilled and grouted bars. All four edges of the new slab shall thus contain dowels or original keys or original tie bars.
- J. Prior to placement of new concrete, the underlying material shall be graded and recompact, and the surfaces of all four joint faces shall be cleaned of all loose material and contaminants, and coated with a double application of membrane forming curing compound as bond breaker.
- K. Placement of concrete shall be as specified.
- L. The resulting joints around the new slab shall be prepared and sealed as specified.

3.3 CONCRETE SURFACE PREPARATION

- A. Remove concrete pavement and slabs on grade with suitable power and hand tools, to existing joint locations and expose a surface of sound materials. Do not use power tools that cause over-breakage or damage adjacent slabs, pavement or structures to remain.
- B. Hand tools such as hammers and chisels shall be used for removal of small adhesions.
- C. Thoroughly clean edges of all existing joint surfaces exposed by means of compressed air, sandblasting, air and waterblasting, wire brushing or by other methods approved by the Engineer.
- D. Prior to placement of membrane forming curing compound as bond breaker, all joint surfaces shall be free of dust, dirt, rust, oil, coatings, organic materials or other foreign matter which would be detrimental to the adhesion of repair materials to the concrete surfaces.
- E. Avoid damaging the portions that are to remain in place. Any damage caused by the Contractor to the existing pavement, slabs on grade or structures that are designated to remain in place shall be repaired or replaced by the Contractor at his expense to the satisfaction of the Owner.
- F. Do not deposit concrete and other materials from demolition in the project area. Capture and remove all debris and dust from the site.

3.04 CLEANUP

- A. All debris, demolition materials, and rubbish are the property of the Contractor. Remove and transport all debris, demolition materials, and rubbish in a manner that will prevent spillage in surrounding waters, on streets, or adjacent areas. Clean up spillage promptly.
- B. Regulations: Comply with federal, state and local hauling and disposal regulations.

END OF SECTION

SPECIAL CONDITIONS

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DIVISION II
SPECIAL CONDITIONS

1.0 LOCATION AND DESCRIPTION OF WORK

The work to be performed under this section is at Maintenance Hanger One, Bradley Air National Guard Base, 100 Nicholson Road, East Granby, Connecticut. All further references to "Contractor" in this section shall mean "Asbestos Abatement Contractor" unless specified as "General Contractor". The Contractor shall be familiar with plans and drawings of this Project Manual related to work that may impact asbestos materials. The Contractor shall work in coordination with the General Contractor for the abatement of asbestos materials as required by this section and as required by the project manual specifications and drawings.

- 1.1 At a minimum the Contractor shall furnish all labor, equipment, insurance, licenses, permits, and notifications necessary to legally remove, package, and dispose of all asbestos materials in accordance with the project specifications as follows:

- 1.1.1 Removal and wet wipe of metal access plates, abatement of contaminated soil (est. 24" deep), and abatement of pipe insulation on pipes, from East-West Hangar floor trench and sections of trench involved in new ramp construction within full containment.

1.2 Estimated Quantities of ACM

| <i>Material</i> | <i>Location</i> | <i>Quantity *</i> |
|-------------------------------------|-----------------|--|
| | | |
| | | |
| | | |
| Pipe insulation & contaminated soil | Hangar Trenches | 250 lin ft of trench w/ (2) pipe runs and 24" of contaminated soil |

*** These estimates are provided to assist the bidder. They do not in any way relieve the Contractors responsibility to review and confirm actual quantities and conditions via a site visit.**

- 1.3 To facilitate and prior to the abatement work, the Contractor shall perform following work:
- A. Construct critical barriers across all openings between the abatement work areas and non-work area spaces.

- B. Within the work area where ACM will be removed, install high efficiency particulate air filtration device(s) capable of producing a negative air pressure differential within the work area of at least 0.020 inches of water static pressure. Provide a pressure monitor for each work area to determine compliance with negative air pressure requirements.
 - C. Perform demolition/ disassembly of lighting fixtures as required to access and properly remove ACM.
 - D. Safety and worker protection is the responsibility of the Contractor. The Contractor shall detail work site safety procedures in the Health and Safety Plan.
 - E. The Contractor shall protect and isolate electrical cables from the work area. The integrity of cable insulation shall be the Contractor's responsibility.
 - F. The Contractor shall supply and erect scaffolding and staging as necessary to provide access for removal related activities.
 - G. The Contractor shall provide a Connecticut-licensed master electrician to oversee any electrical work related to installation of temporary electrical service for abatement work and/or any disconnection work necessary to remove asbestos.
 - H. The Contractor shall note that other construction trades may be working within the project site at the time of the abatement work. The Contractor shall maintain harmonious relations with other trades.
- 1.5 The Contractor shall comply fully with technical specifications included in this Contract Document, and will be observed by the Abatement Monitor (AM). All work shall be performed such that Contractor, Contracting Officer's employees, and public exposures to Asbestos are minimized, building contamination is prevented, contaminated materials are promptly and legally disposed of, and interference with public traffic is minimized.
- 1.6 Detailed work procedures are provided in the Technical Specification, Division III.
- 1.7 The Contractor must possess a valid Asbestos Abatement Contractor's license from the Connecticut DOH, and all asbestos abatement work activities shall be performed by properly trained asbestos abatement workers.
- 1.8 The Contractor shall also obtain and pay for all required permits, and prepare and file all local, state, and EPA pre-notification forms in a timely manner prior to abatement work.
- 1.9 The Contractor shall conduct personal exposure air monitoring as prescribed by OSHA during the project performance.

2.0 LEAD-BASED PAINT

Lead based paint abatement is not an objective of this specification. However, It is the Contractor's responsibility to comply with all applicable federal, state and local regulations for handling and disposal of LBP should Asbestos removal affect lead painted surfaces.

3.0 COMMENCEMENT AND COMPLETION OF WORK

- 3.1 The Contractor shall commence work at the date to be determined at the pre-construction meeting. Work must be completed in a timely manner.

4.0 CONSULTANT AND SUSPENSION OF WORK

- 4.1 The Contracting Officer will designate a qualified firm or individual to perform the duties of the Consultant for this Contract. The Consultant will also act as the Abatement Monitor (AM) for the project.
- 4.2 The removal work shall proceed in a manner that is reviewed by the Consultant. The Contractor shall request critical inspections, in writing, at least 24 hour in advance of requiring the inspection.
- 4.3 During the progress of the work, the Consultant, following approval by the Contracting Officer, will have the right to make any changes, alterations, additions or omissions in the work, related drawings or specifications in accordance with the General Conditions.
- 4.4 The Consultant will recommend that the Contracting Officer order a suspension of work based on a determination of risk of adverse health and safety impacts on the environment, workers, or the general public, or failure to comply with the specifications. The Contractor and the Contracting Officer will be notified in writing of the reason and of the recommended resolution.
- 4.5 The Consultant will provide observation, air monitoring, and surface dust testing services throughout the Contract's duration. It shall be the Contractor's responsibility to comply with pertinent work standards and regulations.
- 4.6 The Consultant will conduct visual observations and air and/or sampling surface dust wipe tests in work areas for evaluating that the work areas remain properly sealed and specified work items are properly completed. Upon completion of work in a defined work area, the Consultant will conduct a final inspection and conduct final work area clearance testing, where required, for the purpose of evaluating work completion. Unsatisfactory conditions shall be immediately corrected in a manner specified by the Consultant and the contract documents. Final payments shall be approved only after the Consultant receives all properly completed Waste Shipment Record Forms and other required documentation and records (see Appendix A).

5.0 CONTRACTOR'S OFFICIAL REPRESENTATIVE, AND PROJECT SUPERVISION

- 5.1 Prior to commencement of the abatement work, the Contractor shall submit in writing for the Contracting Officer's approval the name, title, and qualifications of a least one official Contract Representative for the duration of the contract period. Each designated representative must meet the following minimum qualifications:
 - A. Be a principal or full-time employee of the Contractor, and have the authority to review, negotiate, and sign contract work-related documents on behalf of the Contractor.
 - B. Be thoroughly knowledgeable of the contract documents, including all technical and record keeping requirements.
 - C. Be readily available at all times during the contract period and attend regular project start, end, and weekly progress meetings.
- 5.2 The Contracting Officer's approval of this official "Contract Representative" shall be obtained prior to commencement of the work.
- 5.3 The Contractor shall immediately notify the Contracting Officer in writing of any change in employment status of the Contract Representative and shall submit the name of his/her replacement for approval. The Contracting Officer reserves the right to terminate the contract within five calendar days if the Contractor does not have a qualified Contract Representative.
- 5.4 The Contractor shall provide on-site an English-speaking asbestos project supervisor and at least one English-speaking foreman for the interior of each work area at all times when work is in progress.
 - A. The supervisor and foreman must be thoroughly experienced in asbestos removal work, knowledgeable of all EPA, OSHA, state and local regulations and capable of skillfully executing all work promptly, efficiently and in compliance with all requirements of these specifications.
 - B. They shall have at least 12 months of documented experience in the Asbestos abatement field at a supervisory or foreman level, and be thoroughly knowledgeable of all aspects of design, performance and supervision of Asbestos abatement projects.
 - C. The supervisor and foreman must possess valid asbestos or other required state certification (license) in the appropriate discipline.
- 5.5 The Contracting Officer reserves the right to have any supervisory or foreman personnel removed from a project who does not demonstrate the requisite qualifications, English-speaking capability, experience, or skills to safely direct the work, and adequately protect their own employees, or other employees occupying the premises.

- 5.6 All abatement supervisors, foremen, and workers shall be certified pursuant to Commonwealth of Connecticut requirements.

6.0 REQUIRED SUBMITTALS

- 6.1 The Contractor shall submit three copies of the following items to the Consultant at least five calendar days prior to the start of work on the Contract. No work shall commence until these items are reviewed and approved by the Contracting Officer, through a review and recommendation by the Consultant, unless otherwise waived by the Consultant. Submittals shall be identified as listed below and in Division III, Section 01300 and shall be prepared in sufficient detail to enable the Consultant to readily identify the particular product or equipment, and to form an opinion as to its conformity to the specifications.
- 6.2 The Contractor shall prepare and file formal written notification forms for the work. Each notification shall be in a format acceptable to the listed agency, and be filed within the prescribed pre-notification time period with proper fee included. Copies of all notifications shall be concurrently transmitted to the Contracting Officer and the Consultant:
- 6.3 Three copies of the following items shall be submitted to the Consultant for approval during the course of work under this Contract. These items shall be submitted without delay. Prior to starting work the Contractor shall submit the following:
- A. Quality assurance records including safety (with copies of the OSHA 200 accident report), security, materials and personnel. (Submittal A)
 - B. Changes to original submissions or statement of no changes. (Submittal B)
 - C. Construction schedule. (Submittal C)
 - D. Name and appropriate certifications for laboratories to be use for any analytical testing including, but not limit to, TCLP testing of waste and personal air testing for OSHA compliance. (Submittal D).
 - E. Inspection and service records for HEPA-filtered exhaust units (Submittal E)
 - F. Schedule of values separating the portion of the total contract amount associated with the preparation and removal in each area. (Submittal F)

Daily, during work the following shall be submitted:

- G. Daily logs of workers who enter abatement work areas. (Submittal G)
- H. Results of personal exposure air monitoring samples. (Submittal H)
- I. Inspection, fit-test results, air flow readings, cleaning and maintenance records for air filtering, PAPR, or supplied air respirators. (Submittal I)

- 6.4 Facilities and labor for handling and inspecting all materials and equipment shall be furnished by the Contractor. If the Consultant so requires, either prior to the beginning or during the progress of the work, the Contractor shall submit samples of materials for such special tests as may be necessary to demonstrate that they conform to the specifications. Such samples shall be furnished, stored, packed, shipped and tested as directed at the Contractor's expense.
- 6.5 The Contractor shall review, verify, approve and submit with reasonable promptness and in such sequence as to cause no delay in the Work or in the work of the Contracting Officer or any separate Contractor, all Shop Drawings, Product Data and Samples required by the Contract Documents and/or the Consultant.
- 6.6 The Contractor shall submit data and samples sufficiently early to permit Connecticut Air National Guard consideration for approval before materials are necessary for incorporation in the work. Any delay of approval resulting from the Contractor's failure to submit samples or data promptly shall not be used as a basis of a claim against the Contracting Officer or the Consultant.

**7.0 CONNECTICUT DOH RECORD KEEPING REQUIREMENTS
(GENERAL & ASBESTOS ABATEMENT)**

- 7.1 As required by CT DOH, the Contractor shall maintain the following written records:
 - A. Central Location: The following records and documents shall be maintained by the Contractor at a central location at the principal place of business:
 - 1. Records and documents required by 29 CFR 1910.1001 and 29 CFR 1926.1101.
 - 2. Name and address of each project employee, including dates of employment, medical and training certification. A description of each employee's involvement in previous asbestos project (including name, address, location and duration of project) while employed by the Contractor.
 - 3. Copies of all regulatory agency correspondence including letters, notices, citations received and notifications made by the Contractor pursuant to 453 CMR 6.12.
 - 4. Records and documents required to be maintained under any other applicable Federal, State or local law, regulation or ordinance.
 - 5. Receipts and documentation of disposal of asbestos waste showing dates, locations and amounts of asbestos waste disposed including the identification of the source of the asbestos waste and the transporter (company name or driver's name if an employee of the Contractor).

6. Copies of laboratory reports and sample analysis documenting workplace and personal exposure levels, including copies of consultant's reports regarding clearance level monitoring.

B. On-Site: The following records and documents shall be maintained on-site at the asbestos work location for the duration of the project.

1. A current copy of the work practice requirements of the Connecticut Asbestos Regulation.
2. A copy of this Contract and Specifications.
3. A listing of all employees, by name, Social Security number and Connecticut Asbestos Abatement Worker or Supervisor/Foreperson Certification Number.
4. A listing of the Contractor's Sub-Contractors and Consultants on the project.
5. A legible copy of each employee's training certification.
6. A daily sign-in/out log which identifies persons by name and the length of time each person is on the site.
7. Records of all on-site air monitoring.
8. A written respirator program which conforms to requirements of 29 CFR 1910.134(b).
9. Certified results of worker fit-tests for passive air filtering respirator (if used); and written records for daily inspections, air flow tests, cleaning and repairs of all respirators.
10. Written records of inspection, service and changing of filters for the HEPA-filtered exhaust units.
11. Material Safety Data Sheets (MSDS) for any chemicals stored or used on site.

- 7.2 All of the above records shall be available for immediate inspection by Contracting Officer and/or the Consultant upon request.

8.0 GUARANTEE OF MATERIALS AND WORKMANSHIP

- 8.1 The Contractor's attention is directed to Division I of these specifications.

- 8.2 All materials, services, equipment and workmanship furnished shall be guaranteed for a period of one year after date of acceptance. All work rejected by the Contracting Officer or his representatives shall be redone at the Contractor's expense.

9.0 FIRE PRECAUTIONS

- 9.1 A qualified fire watch shall be maintained at the Contractor's expense when using any type of burning or welding equipment and extinguishing materials suitable to the Contracting Officer shall be furnished and maintained close to each burning or welding operation.
- 9.2 The Contractor shall first advise and obtain from the Contracting Officer permission to use any type of burning or welding equipment of any nature on the project. In addition, The Contractor will secure a hot work permit from the Rocky Hill Fire Department.
- 9.3 The Contractor shall notify the East Granby Fire Department prior to starting work on the project. The Fire Department shall be informed of the location and duration of the work. If required by the local fire code, the Contractor shall obtain a permit from East Granby Fire Department.

10.0 RESTRICTIONS ON THE CONTRACTOR'S OPERATIONS AS TO THE USE OF GROUNDS

- 10.1 The Contractor shall confine his/her operations to the actual work site, access routes and storage areas designated by the Contracting Officer or the local facility manager.
- 10.2 The Contractor shall have sole responsibility for providing all materials, equipment, or tools and any storage required shall be at the Contractor's own risk. The Owner will not assume responsibility for any loss of materials, equipment, or tools stored on its property.

11.0 VISIT TO PREMISES

- 11.1 Examination of the project site and work areas shall be made by the Contractor who shall compare it with the contract drawings and specifications to determine the exact amount of work including that to be removed, altered and/or reconnected. The Contractor shall satisfy himself as to the condition under which the work is to be performed and gain complete knowledge of the scope of work to provide for complete and operable systems. No allowances will subsequently be made for any extra expense to which the Contractor may be accountable due to failure to make such examination and to include the required materials and labor in the bid.
- 11.2 The Contractor will be held to have examined the premises before submitting the proposal for the work and to have knowledge as to the existing conditions under which the work is to be accomplished.

12.0 EMERGENCY CALLS

- 12.1 The Contractor shall provide the Consultant and Contracting Officer with a telephone number where the Contractor or Contractor's Representative can be reached during non-working hours.
- 12.2 At the direction of a duly authorized representative of the Contracting Officer, the Contractor shall dispatch all necessary personnel and equipment to any point on the work site to clear obstructions or make safe any conditions deemed necessary by the Contracting Officer or Consultant.

13.0 PRE-CONSTRUCTION MEETING

- 13.1 After the award of the Contract, but prior to commencing work assigned under the Contract, a pre-construction meeting will be held at a place and time designated by the Consultant to discuss implementation of the terms and conditions of this Contract.
- 13.2 After the pre-construction meeting, but before the commencement of work, the Contractor shall document all present damages at the facility where abatement work will be performed. Photographs or videotape may be used. The Contractor shall be responsible for all repairs/restoration, at no additional cost to the Owner, for any damage not previously recorded.

14.0 SPECIAL INSTALLATION REQUIREMENTS

- 14.1 Any special requirements in addition to those specified in these Special Conditions such as the protection of workers, public, equipment, etc., from ACM , LBP, or other hazardous material exposure; work-related security requirements and work performance-related equipment, materials shall be the responsibility of the Contractor and no additional payment will be made to him/her because of lack of knowledge of such conditions.

15.0 CONSTRUCTION SCHEDULE

- 15.1 Five calendar days prior to commencing work, a construction schedule in a form and substance approved by the Contracting Officer shall be submitted to the Consultant for approval. The Contractor shall not commence any physical work at the site until he/she has received that approval.

16.0 SAFETY AND HEALTH REQUIREMENTS

- 16.1 These construction documents, and the joint and several phases of construction hereby contemplated are to be governed, at all times, by applicable provisions of the Federal laws, including but not limited to, the latest, amendments of the following:
 - A. William-Steiger Occupational Safety & Health Act of 1970, Public Law 91-596.

- B. Part 1910-Occupational Safety and Health Standard Chapter XVII of Title 29, Code of Federal Regulations.
- C. Part 1518-Safety and Health Regulations for Construction, Chapter XIII of Title 29, Code of Federal Regulations.
- D. U.S. Department of Labor in 29 CFR, Part 1926.1101, and the Connecticut Department of Labor and Industries, Division of Industrial Safety "Rules and Regulations for the Prevention of Accidents in Construction Operations (Industrial Bulletin No. 12)."

16.2 The Contractor and all subcontractors shall immediately report all accidents, injuries, or health hazards to the Contracting Officer and Consultant, or their designated representatives, in writing. This shall not obviate any mandatory reporting under the provisions of the Occupational Safety and Health Act of 1970.

17.0 MATERIAL SUBSTITUTION

- 17.1 Where products or materials are specified by the manufacturer's name, or catalog reference, the words "or approved equal" shall be understood to follow. An item shall be considered equal to the item so named or described if:
- A. It is at least equal in quality, durability, appearance, strength and design.
 - B. It performs at least equal to the function imposed by the general design for the work.
 - C. It conforms substantially, even with deviations, to the detailed requirements for the item as indicated by the specifications.
- 17.2 The Contractor's proposal, however, shall be based on the use of any products or material specified, and where two or more products or materials are specified, the choice of these shall be optional with the Contractor.

18.0 SITE SECURITY

- 18.1 Security for the project shall be coordinated with the Contracting Officer's security department and the Consultant.
- 18.2 Equipment stored out-of-doors at the project site is done so at the Contractor's risk. If equipment is left out-of-doors at the project site, it shall be done so inconspicuously and in a location approved in advance by the Contracting Officer.

19.0 VEHICLE TRAFFIC CONTROL AND ACCESS

- 19.1 All vehicles, storage of materials and debris, and the operations of the Contractor in connection with the activities under this Section shall be confined to limits of the contract.

- 19.2 Arrangements for temporary storage or parking of Contractor's trucks, and other vehicles shall be made through the Contracting Officer.
- 19.3 The work shall be conducted in a manner that will not interrupt or interfere with daily operations of the Air National Guard Installation or Contracting Officer or with the orderly and safe passage of the general public.

20.0 WASTE DISPOSAL

- 20.1 All hazardous wastes shall be disposed of at a state and/or federally approved landfill.
- 20.2 The Contractor shall be required to provide a fully completed and signed waste manifest for each load of waste that leaves the site. The form located in Appendix A to Division 3 will be the only manifest form approved for use for ACM waste on this project. Manifests for other hazardous wastes shall be similar in information content to the ACM waste manifest.

21.0 CONTRACTING OFFICER'S RESPONSIBILITIES

- 21.1 The Contracting Officer will furnish the Contractor with electricity and water. The Contractor's personnel will be required to provide their own sanitary facilities. It shall be the Contractor's responsibility to provide hoses, extension cords, etc. to bring water and electricity from the source to the work area(s).
- 21.2 The Contracting Officer, through the Consultant, will provide for services of an Industrial Hygienist (Abatement Monitor) for collection of background and clearance air samples. The Contractor shall provide for collection and analysis of any OSHA required sampling.

END OF SPECIAL CONDITIONS

SECTION 02080 - ASBESTOS ABATEMENT

PART 1 - GENERAL

1.01 SUMMARY

A. This Section includes:

1. Furnishing labor, materials, equipment, supplies, and perform all operations necessary to complete the removal of ACM by competent persons trained, knowledgeable and qualified in the techniques of asbestos abatement, handling and disposal of ACM and asbestos contaminated materials and the subsequent cleaning of contaminated areas, complying with all applicable federal, state, and local regulations in accordance with the attached drawings and these specifications.

B. Related Sections:

1. Section 01300 – Submittals, Schedules and Shop Drawings.
2. Section 01410 - Testing Laboratory Services.

1.02 REFERENCES

A. Code of Federal Regulations (CFR) Publications:

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| 29 CFR 1910.1001 | Industry Standard for Asbestos |
| 29 CFR 1910.134 | Industry Standard for Respiratory Protection |
| 29 CFR 1910.145 | Specifications for Accident Signs and Tags |
| 29 CFR 1910.120 | Hazard Communication |
| 29 CFR 1910.2 | Access to Employee Exposure and Medical Records |
| 29 CFR 1926 | Construction Standards (Subpart C) General Safety and Health Provisions |
| 29 CFR 1926.1101 | Construction Standards for Asbestos |
| 40 CFR 61 | Federal Register Vol. 49, April 5, 1984 Subpart M, National Emission Standards for Hazardous Air Pollutants - Asbestos |

- B. American National Standard Institute (ANSI) Publications:
 - Z9.2-79 Fundamentals Governing the Design and Operation of Local Exhaust Systems
 - Z87.1 Occupational and Educational Eye and Face Protection
- C. United States Environmental Protection Agency (EPA):
 - Guidance for Controlling Asbestos Containing Materials in Buildings (EPA 560/5-85-024), June 1985.
 - A Guide to Respiratory Protection for the Asbestos Abatement Industry (EPA-560-OPTS-86-001), September 1986.
 - Asbestos Waste Management Guidance (EPA/530-SW-85-007), May 1985.
- D. Applicable State Regulations
 - Regulations for the Removal, Containment, and Encapsulation of Asbestos, Connecticut Department of Health

1.03 DEFINITIONS

- A. Abatement: A set of procedures to control fiber release from asbestos-containing materials. Abatement includes the processes of removal, encapsulation, enclosure, repair, involved in demolition and renovation activities.
- B. Amended Water: Water containing a wetting agent or surfactant.
- C. Area Monitoring: The sampling of asbestos fiber concentrations inside the asbestos control area or outside the asbestos control area which is representative of the airborne concentrations of asbestos fibers which may reach the breathing zone.
- D. Asbestos: The term asbestos includes chrysotile, amosite, crocidolite, tremolite asbestos, anthophyllite asbestos, actinolite asbestos, and any of these minerals that have been chemically treated and/or altered.
- E. Asbestos-Containing Material (ACM): Material composed of asbestos of any type and in an amount greater than 1 percent by weight, either alone or mixed with other fibrous or non-fibrous materials.
- F. Asbestos-Containing Waste Material: Asbestos-containing material or asbestos containing objects requiring disposal.
- G. Asbestos Control Area: An area where abatement removal operations are performed which is isolated by physical boundaries with a temporary impermeable barrier to prevent the spread of asbestos dust, fibers, or debris.

- H. Asbestos Fibers: This expression refers to asbestos fibers having an aspect ratio of at least 3:1 or 5:1 depending on the NIOSH method utilized, and longer than five micrometers.
- I. Clean Room: An uncontaminated room having facilities for the storage of employees' street clothing and uncontaminated materials and equipment.
- J. Competent person: A person who is capable of identifying existing asbestos hazards in the work place and who has the authority to take prompt corrective measures to eliminate them, as specified in 29 CFR 1926.32(f). The duties of the competent person include at least the following: establishing the negative-pressure enclosure, ensuring its integrity, and controlling entry to and exit from the enclosure; supervising any employee exposure monitoring required by the standards; ensuring that all employees working within such an enclosure wear the appropriate personal protective equipment; are trained in the use of appropriate methods of exposure control, and use the hygiene facilities and decontamination procedures specified in the standards; and ensuring that engineering controls in use are in proper operating condition and are functioning properly.
- K. Critical Barrier: A rigid, non-moveable barrier placed in an asbestos abatement project to prevent the accidental release of fibers from the regulated area and unauthorized entry of persons into the project area. The critical barrier defines the outer most boundary of the contained work area.
- L. Decontamination Area: An enclosed area adjacent and connected to the regulated area and consisting of an equipment room, shower area, and clean room, which is used for the decontamination of workers, materials, and equipment potentially contaminated with asbestos.
- M. Encapsulant: Encapsulant is liquid sealant which can be applied to asbestos-containing-material (ACM) which controls the possible release of asbestos fibers from the material either by creating a membrane over the surface (bridging encapsulant) or by penetrating into the material and binding its components together (penetrating encapsulant). Any such encapsulants shall be in conformance with building and or fire safety code requirements.
- N. Encapsulation: The application of an encapsulant to asbestos-containing materials (ACM) to control the release of asbestos fibers into the air.
- O. Enclosure: All herein specified procedures necessary to completely enclose asbestos-containing material behind an impermeable, permanent barriers.
- P. Equipment Decontamination Enclosure: That portion of a three-chamber decontamination enclosure system designed for controlled transfer of materials and equipment, typically consisting of a washroom and a holding area.

- Q. Equipment Room: A contaminated area or room which is part of the worker decontamination enclosure with provisions for storage of contaminated clothing and equipment.
- R. Exhaust Ventilation System: A portable exhaust system equipped with HEPA filtration and capable of maintaining a constant low velocity air flow into contaminated areas from adjacent uncontaminated areas.
- S. Exposure Levels Established by OSHA Standards Are:
 - 1. Permissible Exposure Limit (PEL): 0.1 fiber per cubic centimeter of air (f/cc), averaged over an 8-hour day.
 - 2. Short-Term Exposure Limit (STEL): 1 f/cc averaged over 30 minutes.
- T. Fixed Object: A unit of equipment or furniture in the work areas which cannot be removed from the work area.
- U. Friable Asbestos Material: Material that contains more than one percent asbestos by weight and that can be crumbled, pulverized, or reduced to powder by hand pressure when dry.
- V. HEPA Filter: High efficiency particulate air (HEPA) filter in compliance with ANSI-Z9.2 1979. Filters shall be of 99.97 percent efficiency for retaining fibers of 0.3 microns or larger.
- W. HEPA Vacuum Equipment: A vacuum unit with a HEPA filter system for filtering exhaust air.
- X. NESHAPS: National Emission Standards for Hazardous Air Pollutants, including asbestos, administered by the EPA.
- Y. NIOSH: National Institute for Occupational Safety and Health.
- Z. Non-friable Asbestos Material: Material that contains asbestos in which the fibers have been locked in by a bonding agent, coating, binder, or other material so that the asbestos is well bound and will not release fibers during any appropriate use, handling, demolition, storage, transportation, processing, or disposal.
- AA. Personal Monitoring: Personal monitoring is the sampling of air within the breathing zone of an individual.
- BB. Abatement Monitor: An industrial hygienist or industrial hygiene technician working under the supervision of the Consultant. The Abatement Monitor will be on site throughout the entire abatement project to conduct site evaluations, air monitoring, and on-site sample analysis and observe Contractor compliance with applicable federal, state, and local health and safety regulations.

- CC. Surfactant: Surfactant is a chemical wetting agent added to water to improve penetration.
- DD. Time Weighted Average (TWA): The TWA is an eight-hour time weighted average of airborne concentration of particulates.
- EE. Visible Asbestos-Containing Material: A sufficient quantity of material which can be collected as a bulk or wipe sample and confirmed to contain greater than one percent of asbestos by weight.
- FF. Wet Cleaning: The process of eliminating asbestos contamination from building surfaces and objects by using cloths, mops, or other cleaning utensils which have been dampened with water and afterwards thoroughly decontaminated or disposed of as asbestos contaminated waste.

1.04 SUBMITTALS

Submittals shall be provided in accordance with Division II and Section 01300.

1.05 SHOP DRAWINGS

Shop drawings shall be prepared by the Contractor or subcontractors or suppliers for submission in accordance with Division II and Section 01300.

1.06 SERVICE ENTRANCES AND CONFINED SPACES

- A. Contractors are obligated when working in confined spaces to follow 29 CFR 1910 and 29 CFR 1926 and shall be guided by the National Institute of Occupational Safety and Health (NIOSH) criteria document for confined spaces. The Contractor shall resolve any conflicts regarding confined space entry and negative air requirements between regulatory agencies.
- B. The Contractor shall be responsible for supplying necessary instrumentation and performing all confined space testing for the project, including testing for access to areas by the Contracting Officer and/or the Consultant.

1.07 QUALITY ASSURANCE

- A. Job Site References: The Contractor shall have on job site at all times at least one copy of the following:
 - 1. Plans and Specifications.
 - 2. Guidance for Controlling Asbestos Containing Materials in Building (EPA 560/5-85-024), June 1985.
 - 3. Asbestos Waste Management Guidance (EPA/530-SW-85-007), May 1985.

4. A Guide to Respiratory Protection for the Asbestos Abatement Industry (EPA-560-OPTS-86-001), September 1986.
 5. Federal Register - Part II - OSHA - 29 CFR Parts 1910 and 1926.
 6. 40 CFR Part 61 Subpart M - NESHAPs Asbestos
- B. Refer to Division II for additional documentation to be maintained at the job site.
- C. Safety Compliance: The Contractor shall in addition to detailed requirements of this specification:
1. Comply with laws, ordinances, rules and regulations of federal, state, regional and local authorities regarding handling, storing, transporting and disposing of asbestos waste materials;
 2. Comply with the applicable requirements of the current issue of 29 CFR 1910.1001; 40 CFR 61, Subparts M and 29 CFR 1926 and with state regulations;
 3. Submit matters of interpretation of standards to the appropriate administrative agency for resolution before starting the work. Where the requirements of this specification and referenced documents vary, the most stringent requirement shall apply.
- D. Respirator Program: The Contractor shall establish a respirator program as required by 29 CFR 1910.1001 and 1926.1101. This program shall comply with all paragraphs of 29 CFR 1910.134.

1.08 DELIVERY AND STORAGE

- A. The Contractor shall deliver all materials in the original packages, containers or bundles bearing the name of the manufacturer and the brand name.
- B. The Contractor shall store all materials subject to damage off the ground, away from wet or damp surfaces and under cover sufficient enough to prevent damage or contamination.
- C. The Contractor shall remove and not use damaged, deteriorating or previously used materials. These materials shall be removed from the work site and properly disposed.

1.09 AUTHORITY TO STOP WORK

- A. The Contracting Officer has the authority to stop the abatement work at any time that conditions are not within the specifications and applicable regulations. The stoppage of work will continue until conditions have been corrected and corrective steps have been taken to the satisfaction of the Contracting Officer and the Consultant. Standby time required for the Contractor's personnel and the Abatement Monitor to resolve violations shall be at the Contractor's expense.

- B. Stop-Work Airborne Asbestos Fiber Levels will be as follows:
 - 1. Inside Work Area (Removal): 0.5 f/cc (with wet methods).
 - 2. Outside Work Area: 0.01 f/cc as measured in clean room and/or the HEPA exhaust.
- C. Stop work orders will be issued for, but not be limited, to the following:
 - 1. Excessive airborne fiber concentrations inside and/or outside work area.
 - 2. Breaks in containment barriers.
 - 3. Loss of negative air pressure (0.02 inches of water - minimum negative pressure to be maintained).
 - 4. Failure of workers to wear appropriate respiratory protection.
 - 5. Failure to follow required federal, state or local regulations and requirements of this specification and the Contractor's approved abatement plan Submittal.

PART 2: PRODUCTS

2.01 MATERIALS

- A. Polyethylene sheeting for walls and stationary objects shall be a minimum of 4-mil thick. For floors and all other uses sheeting of at least 6-mil thickness shall be used in widths selected to minimize the frequency of joints.
- B. Polyethylene sheeting utilized for worker decontamination enclosure and exterior windows shall be opaque white or black in color.
- C. Clear acetate shall be used for windows and shall be 36 inches by 36 inches in size or as determined.
- D. Disposal bags shall be of 6-mil polyethylene, pre-printed with labels. Label Specifications shall comply with 29 CFR 1910.1001, 29 CFR 1926.1101, and applicable U.S. Department of Transportation (DOT) regulations.
- E. Disposal drums (if used) shall be metal or fiberboard with locking ring tops.
- F. Warning signs and labels shall be provided at approaches to any asbestos control areas and will be affixed to any asbestos-containing materials which will be left intact and in-place at the site. Signs shall be located at such a distance that personnel may read the sign and take the necessary protective steps required before entering the area. The Contractor shall provide labels and affix to asbestos materials, scrap, waste, debris, and